University of Alberta

Information behaviours in the digital environment: A case study of humanities and social sciences scholars

by

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ABSTRACT

This thesis discusses humanities and social sciences (HSS) scholars' academic information behaviours in the digital information context, with a special emphasis on the particular context of digital collections. Using in-depth interviews and examinations of both digital and physical resources, this study finds that HSS scholars to a large extent still sustain their research information behaviours when they become more and more engaged in digital resources. Grounded in web usability theories, the study adopts *Peel's Prairie Provinces* of the University of Alberta Libraries as one example of a digital collection, revealing that HSS scholars have particular expectations for the search functions. The study also discusses features that can be incorporated into a website to make it more supportive for specific scholars' academic work.

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Chapter I Introduction

INTRODUCTION

Information behaviour studies have a long history, beginning at the end of the Second World War. The studies have attempted to understand how different groups of people engage in distinctive information behaviours and how their information needs may be met. Studies focusing on information-seeking behaviour have contributed to the development of information literacy and skills training for electronic resources, digital libraries, and also for physical libraries (e.g., Case 1986; Cole 1998). The concept of information behaviour subsumes the totality of human information behaviour pertaining to sources and channels of information, including active and passive information seeking, and information use behaviours (Wilson 2000, 49). In particular, information behaviour studies explore users' information requirements including how users navigate information systems and what they could do with the available data given by the system.

Research on information needs, seeking, and use has been recognized within the field of information studies since at least the 1960s (Line 2000, 425). Since the 1960s, the field has changed in several major stages. To a large extent, this change seems to parallel the information technology available. Also, a growing tendency has been to regard seeking as a form of human interaction with information or information systems in a particular contextual situation (Hoglund and Wilson 2000, 1). Over the last few decades, research projects began to draw attention to the unique information-seeking behaviour of humanities scholars,

while many of the studies were dealing with humanities scholars' research behaviour in general (e.g., Bouazza 1989; Watson-Boone 1994; Chu 1999).

The attention of empirical research on information seeking behaviour, focused on science and engineering during the 1960s, on the social sciences in the 1970s, and turned to arts and humanities in the 1980s (Bates 1996, 155). According to Wikipedia, "The **humanities** are a group of academic subjects united by a commitment to studying aspects of the human condition and a qualitative approach that generally prevents a single paradigm from coming to define any discipline" (Wikipedia 2005a). It typically consists of disciplines like arts, cultural studies, regional studies, philosophy, english and so forth. "The **social sciences** comprise the claimed application of scientific methods to the study of the human aspects of the world" (Wikipedia 2005b). Disciplines such as political science, anthropology, sociology, linguistics, psychology, and education are generally categorized as social sciences. Communications and history can be classified as either social science or humanities, but given the nature of their research, scholars from history, native studies and education policy in this project all belong to the social sciences category. Thus, the research subjects consisted of scholars in the humanities and social sciences (HSS).

Sue Stone (1982, 293) reviewed a number of studies from before the 1980s, and noted the "relative neglect" of research focusing on the humanities from before the late 1970s. Her review, and other similar work, marked the beginning of a new era in which researchers in library and information science have shown greater interest in the nature of humanities scholars' information-seeking. Brenda

Dervin (1983) developed a conceptual model addressing information needs as the fundamental need for sustenance, while T.D. Wilson (1981) defined information needs in the secondary order to satisfy the primary needs. Judith Palmer (1991) set out to use semi-structured, in-depth interviews to probe the relevance of the information behaviour and users' personality, discipline and organizational structures.

Helen R. Tibbo (1991) described the explosive growth in information technology for humanities scholars, and research on this has expanded rapidly. With the development of the internet, researchers increasingly focus on the general use of information in the context of websites (e.g., Romanos-de-Tiratel 2000; Jarkko and Savolainen 2003). Nevertheless, research on the information behaviours of humanities and social sciences scholars in the special context of digital collections remains an area that has yet to be examined and explored.

RESEARCH PROBLEMS

According to the National Science Foundation (1998), research on digital libraries is organized into three areas for ease of exposition: human-centred research; content and collection-based research; and systems-centred research. This project is a part of the general area of human-centred research and seeks to further understanding of the effects and potential of digital libraries to enhance human activities in creating, seeking, and using information and to promote technical research designed to achieve this.

The goal of this study is to investigate HSS scholars' information-seeking behaviours in the context of their academic work – and to explore how they use one digital collection (i.e., the University of Alberta Libraries' *Peel's Prairie Provinces*). By learning more about these scholars' needs and the ways that they use this collection, this study outlines recommendations for improving such digital libraries. To further understand the information-seeking behaviour of HSS scholars in various information contexts, this study employed qualitative research methods to gather research subjects' opinions and preferences. The unique research structure is fully illustrated in the following diagram:

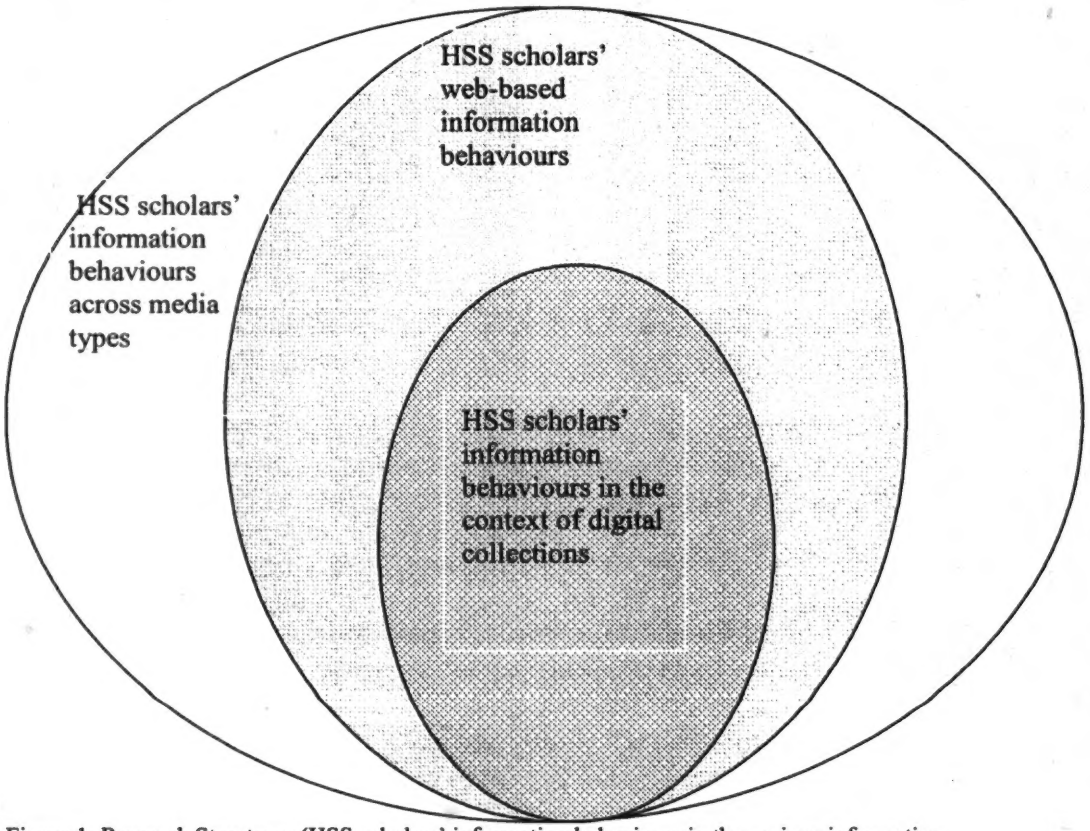
HSS scholars' information behaviours across media types
HSS scholars' web-based information behaviours
HSS scholars' information behaviours in the context of digital collections

Figure 1: Research Structures (HSS scholars' information behaviours in the various information contexts)

The scholars were recruited at the University of Alberta, a large research-oriented university. The call for participants was initially disseminated in the Faculty of Arts, but scholars from the Faculty of Education, School of Native Studies, and the Department of Human Ecology also volunteered. These were scholars who specialized in social science research and who had experience using digital collections.

Digital resources are becoming more and more useful to humanities and social sciences scholars in their daily work. However, studies on the use of these resources by scholars still remain limited (e.g., Brockman et al. 2001). Digital libraries are still evolving; digital projects are bringing texts, data resources, and images to scholars' desktops, but the ways scholars rely on digital resources are neither well understood nor sufficiently investigated by librarians or researchers engaged in the library and information science field. As Ann Okerson (2000, 671) said, "[The library] profession should do what our commercial information suppliers are doing: focus on the users, their needs, their wants, and the practices of using information." This project then has been designed to investigate humanities and social sciences scholars' information behaviours in the context of digital resources, with a particular focus on digital collections.

In addition, this study acknowledges, as prior research has shown (e.g., Genuis 2004), that usability studies on special library websites are sparse. The Digital Library Federation (DLF) conducted one project (Davidsen and Everyl 2003, 1) and suggests that digital libraries should try to find the best ways to define their user communities, understand their new value in the digital

environment, and redesign the digital library collections and services to meet their demands. To emphasize this point, the DLF notes that this effort requires more formal and deeper research and analysis of how patrons use and respond to online collections and services.

The project reported here includes nine interviews with humanities and social sciences scholars, to investigate their academic information behaviours and to conduct a usability study of one digital collection (*Peel's Prairie Provinces*). Interviewees responded to questions about how they locate information for their scholarly work, including the role of web-based information resources. They were also asked to explore the *Peel's Prairie Provinces* (*Peel*) website. The participants included both faculty members and graduate students, and subsume both users and non-users of this particular collection. In addition, extensive interviews with two librarians involved in the development of the *Peel* digital library were conducted to document the development of this collection.

Overall, this project set out to explore humanities and social sciences scholars' information behaviours in the different information contexts outlined in Figure 1, to investigate if their different behaviours include internal or logical relationships given the distinctive context. In particular, their experiences with digital collections were a primary focus of this study. This research also examines web usability issues in the context of the *Peel* website, for this particular group of scholars. To summarize, this project had three main goals:

1) To investigate how humanities and social sciences scholars think about, organize, and perform their academic activities in the context of academic research and teaching work;

2) To examine the role of internet resources (and digital collections, in particular) in these scholars' academic activities;

3) As a particular context of the digital collection, to explore the *Peel* site's web usability and usage, to investigate features that could be incorporated into this digital library website to make it more useful to this target group of users.

BACKGROUND ON *PEEL'S PRAIRIE PROVINCES*

Peel's Prairie Provinces (see Figure 2) is a dynamic online resource designed for scholars, researchers, teachers, students, and other people interested in exploring the Canadian Prairies' history and culture. Led by the University of Alberta Libraries, the site is engaged in developing the collection as the most complete database of materials related to the development of the Prairies. The name of the site, *Peel's Prairie Provinces,* is adapted from the book *Peel's Bibliography of the Canadian Prairie to 1953* (Ingles 2003), a bibliography of reference materials about the Prairies by Bruce Peel.

Bruce Braden Peel was born in 1916 in Ferland, in southern Saskatchewan, and grew up there. In 1951, he became chief cataloguer at the University of Alberta Libraries. and later rose to the position of deputy librarian. In 1955 he was appointed "Librarian to the University". As a library administrator, he successfully guided the growth of the University of Alberta Libraries from a very

modest size to one of the three largest research libraries in Canada. Peel is the bibliographer most closely associated with the Canadian Prairies culture. He compiled the history of Western Canada in printed documents in his book, *Peel's Bibliography of the Canadian Prairies to 1953* published by the University of Toronto. The bibliographic database now forms the core of *Peel's Prairie Provinces* [http://peel.library.ualberta.ca], a scholarly portal devoted to Western Canadian studies.

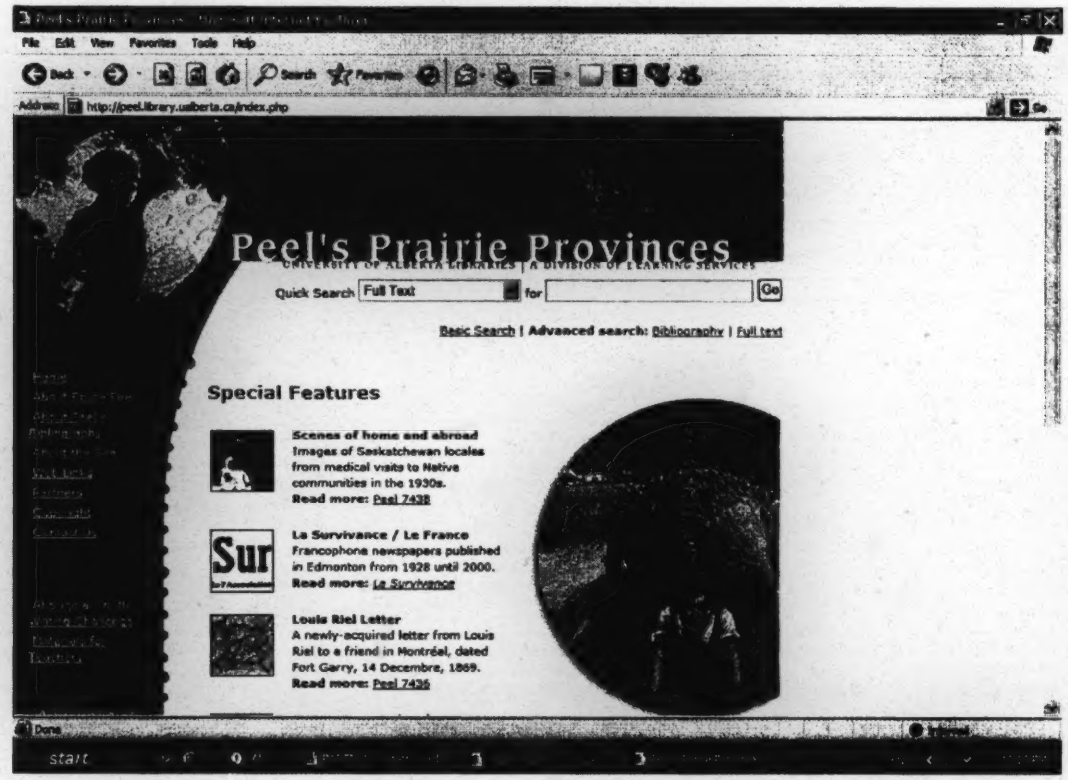
Peel's Prairie Provinces
Quick Search
Full Text
for
Go
Basic Search | Advanced search: Bibliography | Full text
Special Features
Scenes of home and abroad
Images of Saskatchewan locales from medical visits to Native communities in the 1930s.
Read more: Peel 7438
La Survivance / Le France
Francophone newspapers published in Edmonton from 1928 until 2000.
Read more: La Survivance
Louis Riel Letter
A newly-acquired letter from Louis Riel to a friend in Montréal, dated Fort Garry, 14 Decembre, 1869.
Read more: Peel 7436

Figure 2 Screen Capture of the *Peel* Homepage [http://peel.library.ualberta.ca/] (Used with the permission of the *Peel*'s project development team; see Appendix I)

With the intention of digitizing all the materials listed in this reference book, the project had already finished 2,500 titles (out of 7,200 total) from *Peel's*

Bibliography of the Canadian Prairies to 1953 by September 2004. The comprehensive content of the site is not limited to titles in *Peel's Bibliography of the Canadian Prairies to 1953*, as it also contains books, pamphlets, newspapers, manuscripts, and other materials that comprise all aspects of the settlement and development of Western Canada. The most important point of this digital collection is that it offers full-text searching of some materials in the collection. The original physical resources have been preserved in the Bruce Peel Special Collections Library at the University of Alberta.

Chapter II Literature Review

INFORMATION BEHAVIOUR STUDIES

History and Definitions

According to the online encyclopedia Wikipedia, information is a term with many meanings depending on context but is, as a rule, closely related to such concepts as meaning, knowledge, instruction, communication, representation, and mental stimulus (Wikipedia 2005c). Case (2002, 5) indicated that information could be any aspect that you notice in reality. It can be any difference you perceive, in your environment or within yourself, and information needs arise where there is recognition that your knowledge is inadequate to satisfy the goal that you have. In this context, information seeking occurs as the conscious effort to acquire information in response to a need or gap in your knowledge (Case 2002, 5). Information-seeking is the purposeful seeking for information as a consequence of a need to satisfy some goal (Wilson 2000, 49). It is a process in which humans purposefully engage in order to change their state of knowledge, and which is closely related to learning and problem solving (Marchionini 1995, 17). Generally, information-seeking is defined "as any activity of an individual that is undertaken to identify a message that satisfies a perceived need" (Krikelas 1983, 8).

As mentioned previously, information behaviour studies encompass the exploration of all the human information behaviours in relation to sources and

channels of information (Wilson 2000, 53). Information behaviour includes active information-seeking behaviour as well as other unintentional behaviours, including passive or purposive avoiding of information seeking (Case 2002, 5). Thus, information-seeking behaviour constitutes part of the total research field of information behaviours (Wilson et al. 1999).

The origins of human information-seeking behaviour studies are found in work on the users of libraries. However, studies from the late 1940s to the 1970s were mainly concerned with the use of information resources and systems rather than the human aspect of information use (Wilson 2000, 51). Since the 1980s, an evident shift has occurred in the information use research field towards a "human-centred" rather than "system-centred" approach. Accompanying this shift, research studies also started to use more qualitative research methods (Wilson 2000, 51). The project reported here uses qualitative methods to examine human aspects related to information use in one particular context – HSS scholars seeking academic information, with a particular focus on digital collections.

Overview of Theoretical Issues

Wilson (1994) noted, "Unfortunately, so much work has been done without reference to any theoretical framework that it must either be ignored completely or the 'miscellaneous' category would be very large indeed." About a decade later, Case (2002, 135) reviewed the theories being conducted in the information behaviour research field and found a broad range, including: Social Learning Theory; Theory of Taste; Theory of Reasoned Action; Theory of Communicative

Action; Personal Construct Theory; Diffusion of Innovations; Optimal Foraging Theory; Social Network Theory/ Strength of Weak Ties; Reader Response Theory; and theories of Power, Knowledge, and Discourse, among others. However, Case (2002, 135) also concluded that no comprehensive theories of information science have been solidly recorded in the literature so far. At this point, information science is more dedicated to generalizing information models instead of provoking and conceptualizing the more abstract theories and paradigms.

It is widely accepted that the aim of information studies is to build models of information behaviour that display how different factors affect and influence information-seeking behaviour (Talja, Keso, and Pietilainen 1999, 753). Wilson points out that

> most models in the general field of information behaviour are [...] statements, often in the form of diagrams, that attempt to describe an information-seeking activity, the causes and consequences of that activity, or the relationships among stages in information-seeking behaviour (1999, 250).

The strength of a model to simplify one phenomenon can be the weakness of overgeneralizing the context of another. Models typically focus on more limited problems than theories, while most models could serve as a pilot stage of a theory, leading to the development of formal theories (Case 2002, 114).

According to David J. Johnson (1997, 104), theoretical information behaviour models must address three key points: first, models must be able to build a sound theoretical foundation for predicting changes in the information-seeking behaviours; second, models would be able to provide guidance for designing strategies or systems which intend to enhance information-seeking; and

third, models must explicitly conceptualize human information behaviour and develop a rich description of it.

The most cited information behaviour model in the literature is James Krikelas's (1983) model, which is committed to fit to the context of "ordinary life" given its casual structure. The essential point of this model is that the combination of information gathering and information giving creates the information needs, and the needs would again be met by the behaviour of information gathering. The most valuable point of Johnson's (1997) model is that he fully classified the antecedents of the seeking actions into background and personal relevance factors. His model is often regarded as the basis for many empirical research studies (Case 2002, 126). Gloria Leckie, Karen Pettigrew and Christian Sylvain (1996) developed a model using Johnson's key concepts and Krikelas's model, while limiting its suitable context to professional working environments rather than ordinary life (Case 2002, 126). The second of Wilson's (1999, 256-57) models has long been regarded as the most classical general information behaviour model. This model places a significant emphasis on the context in which information needs arise and illustrates the complexity of information contexts. The second key point is that Wilson formally identified that the information-seeking process comprises not only the active search and ongoing search but the passive search as well. The information-seeking process is a loop program and it starts over again if the needs cannot be satisfied (Case 2002, 119).

Case (2002, 12) noted that

> ideally, what we would really like to know is how people go about seeking (or avoiding) information in a *generic* way, free of specific contexts like heart

> disease research or car purchases. Unfortunately, as with other attempts to conduct basic research on human behavior, it is difficult to generalize beyond the specific type of stimulus that prompted the behavior.

Context means the combination of person and situation that served to frame an investigation (Case 2002, 13). Precisely, in the literature there are three major themes of study about information behaviours: by theory, by methods, and by context. This project will focus on context.

The review of theory foundation is necessary, as it is an indispensable part of the holistic picture of information behaviour research and studies. This research project applies those theories into the findings of the project, to scrutinize the consensus and conflicting points in the literature. Furthermore, the findings of this study will undoubtedly contribute to the evolving theoretical research in the information science field.

Studies of HSS Scholars: Traditional Perspective

Stone (1982) scrutinized the general portrait of humanities scholars, including their behaviours of working alone, their inclination to browse collections, and their adaptation of various approaches to identifying materials. Although books and journals were the most frequently used materials at the time of her review, Stone predicted that computers and related technologies would become more important, and that these tools would eventually force them to articulate their ideas in more precise language. Empirical studies prior to 1990, such as Wiberley and Jones (1989) and Sievert (1988), indicate that humanities scholars essentially acquire information through reading. Examples of these

studies include: Wiberley and Jones (1989), who interviewed humanities scholars about their research habits, their use of the academic library, and their use of information technology; and, Watson-Boone (1994, 206), who identified that humanities scholars rely on the physical library materials more than scholars in any other field.

User studies of humanities scholars have usually focused on their use of libraries (e.g., Broadbent 1986). Many of these studies have noted the preference of humanities scholars for informal channels to information over more systematic searches, such as consultation with reference librarians and electronic and using bibliographic tools. They are quite willing to consult special collection librarians however, because it is expected that they need help using special collections.

Watson-Boone's (1994) studies of information needs and habits of humanities scholars have revealed that they explicitly rely on primary references rather than other assisting tools, such as bibliographies. Compared with Stone's work (1982), Watson-Boone's work indicates the changing context of the humanities scholars' behaviour to concide with the development of technology. Tibbo (1991) describes the explosive growth in information technology for humanities scholars, and research on this has grown rapidly. With the development of the internet, research is increasingly focused on the general use of information in that context, as Stone predicted. This study sets out to investigate information-seeking behaviours with a special focus on digital collections as new information-seeking contexts.

Recent major studies that illuminate the emerging trends include quantitative project conducted by the Research Support Libraries Group (RSLG) which analyzed the behaviours of 250 researchers from the humanities and the arts across universities in the United Kingdom (2002). A project funded by the Digital Library Federation (DLF) surveyed faculty members and graduate and undergraduate students from clusters of higher education institutions across the United States (Friedlander 2002, 1). Another study funded by the DLF used semi-structured interviews with 33 humanities scholars from universities in Illinois (Friedlander 2002). These studies not only confirmed that humanities scholars are the largest group using physical/hard copy journal resources (Brockman et al. 2001, 25), but also revealed hosts of information-behavioural themes when humanities scholars work in the new digital environment.

The RSLG (2002) study shows humanities scholars' conviction that physical access to materials remains essential. Other studies also reveal that the most valuable reference sources for humanities and social sciences scholars are the works cited in articles that scholars have already located (e.g., Delgadillo and Lynch 1999; Green 2000). The literature also shows consensus that scholars in the humanities rarely have librarians as a major information resource (RSLG 2002). According to DLF data set studies, electronic books are still a very limited-use resource type, while book reviews remain the most preferable resource for HSS scholars, together with journal articles (Friedlander 2002, 15). In particular, when the internet is being widely used, e-journals become more and more useful for HSS scholarly work. In the DLF study, some scholars specifically mentioned that

"they are extremely pleased with the full-text resources" (Brockman et al. 2001, 19).

Case (2002) states that the most significant reviews of information studies on the social sciences scholars are the ones written by Hogeweg de Haart (1981) and David Ellis (1989); Ellis concluded that information seeking processes could be sorted into six stages of starting, chaining, browsing, differentiating, monitoring, and extracting. Of interest, a majority of researchers point out that the most distinguishing feature of social sciences scholars' information behaviour is their particular preference for journals in their desired fields, while humanities scholars prefer books and archives (e.g., Wilson 1981; Gould and Pearce 1991). Lynn Westbrook (2003) did research on sociology librarians to investigate the complex information-seeking patterns of faculty members in the field of women's studies.

New Trends

Information needs do not happen in a vacuum. The environment in which the seeker exists largely determines, constrains, and supports the process where information needs arise. Partially, the seeker's memories, experiences, motivations and purposes also could have influenced the information-seeking process.

Wendy M. Duff and Catherine A. Johnson's (2002) review, indicated the 1990s were a decade of profound change in the way library users went about seeking information and accessing materials, both within the walls of the library and beyond. At the beginning of the decade, individual CD-ROM workstations of

databases to be searched through library OPAC systems were beginning to lure users away from the printed periodical indexes. In 1996 and 1997, the User Access to Services Committee of RUSA's Machine-Assisted Reference Section (MARS) began to talk about the changes that were then taking place and what they meant for our understanding of users and their information-seeking behaviours. At that time, there was also an immense growth in studies of the "digital library": the combination of electronic indexes, full-text, and other electronic resources, often using internet connectivity. Research from the late 1990s covered concerns of interface design: user navigation, sense-making in the digital environment, and user modeling for improved interface design (e.g., Payette and Rieger 1998; Kilker and Gay 1998). Malone and Videon (1997) investigated effects of digital libraries on the quality of students' research; results were inconclusive, though it is generally felt that access to full-text and ease of use influence students' information-seeking behaviours. Surveys and structured interviews/focus groups were the primary research tools, though two sets of bibliography analyses (Malone and Videon 1997) also appeared.

Reviews of recent information studies point to the increasing emphasis on information behaviour taken in context (Case 2002, 225). With the great focus on this trend, a series of conferences, called Information Seeking in Context (ISIC), began in 1996. Dervin (1997) noted at the initial ISIC conference that "context has the potential to be virtually anything that is not defined as the phenomenon of interest" (14). Talja, Keso, and Pietalainen (1999) defined context as

> the site where a phenomenon is constituted as an object to us… any factors or variables that are seen to affect individual's information-seeking behaviour:

> socioeconomic conditions, work roles, tasks, problem situations, communities and organizations with their structures and cultures, etc. (754).

Although there is no clear milestone to mark the new stage of the research, these studies of information-seeking behaviours have been regarded as more mature in terms of the methodology and theories, and in the growing trend concerning people's information-seeking behaviour as the contextual human interaction with information or information systems. Growth of the studies can be seen in both the number of studies and in their approaches as well (Hoglund and Wilson 2000, 1). Parallel to this, papers at the third ISIC Conference covered numerous relevant topics. Bryce Allen and Kyung-Sun Kim (2001, 1) explored the nature of person-situation interaction when users perform information-seeking in the information retrieval systems, and concluded the differences in users' cognition and information tasks affect their information-seeking behaviour separately. Ann Light (2001, 135) found external contextual factors, such as a website's producer and a site's subject matter, influence a user's perception of websites. A variety of digital contexts, including information retrieval systems, general websites, and e-journals and e-books have been scrutinized, but studies that investigate digital collections as a specific context are sparse. This study sets out to fill the gap in this research field, placing a particular focus on exploring the context of digital collections with scholars in humanities and social sciences.

DIGITAL COLLECTIONS

Introduction

Digitization of materials housed in museums, historical societies and archives has become a major trend recently (Covey 2002, 1), but the creation and management of those digital library collections is still a relatively new area in librarianship. Digital library is a term often used to refer to a combination of electronic resources and services that support using the resources (Johnson 2004, 200), such as digital reference service, online catalogues. Technical problems, copyright, security, licensing and user instructions are all challenges to e-resource management. Electronic resource is an umbrella term for all information stored digitally, encompassing different genres and formats, such as e-books, e-journals, and so on. A digital collection is defined as "a selected and organized set of digital materials along with the metadata that describes them and at least one interface that gives access to them" (Machovec 2002, 1). This project focuses on the digital collection as a unique type of digital library.

Collection development and management became formal libraries specialties in North America in the late 1970s with the emergence of professional associations, conferences, and significant literature (Johnson 2004, 26). From then on, the focus of collection management has been decentralized from the sole point of selecting materials to a variety of collection responsibilities, including

> the selection, the determination and coordination of selection policy, assessment of the needs of users and potential users, collection use studies, collection analysis, budget management, identification of collection needs, community and user outreach and liaison, planning for resource sharing,

> decisions about weeding, storage, and preservation, and the organization and assignment of responsibilities for its practice (Johnson 2004, 26).

In the digital collection literature, a host of cases are quite useful as potential guidance for the *Peel* website project, and these will be explored in detail. Others will be covered very briefly only to emphasize some unique point of the project, or to demonstrate an overview of the current situation of digital collections.

Technical Issues

The motivations for digitizing collections are the preservation of the physical materials, improving and facilitating access to the physical objects, and enhancing the information accessing system of the digital collections (Machovec 2002, 1). The main technical problems, which create challenges for developing optimal digital collection resources, include such problems as intellectual property, metadata standards, copyright issues, archiving of digital objects, and human-machine interface (Machovec 2002, 1). Among all the challenges associated with digital resources development, technical issues are often seen as the most complicated, in addition to the costs of equipment and connectivity, equity of access, indexing and other internet-related issues.

Given the success of some digitization projects, several crucial steps have been shared by most of the digitization projects discussed in the literature. Explicitly, librarians involved in the digitization process have to be most concerned with the searchability of the digital collection, the format of the files in terms of the accessibility, and metadata standards (Wilson 2003, 89). The

Amateur Athletic Foundation of Los Angeles Sports Library (AFF) is a good example of a collection that has successfully converted paper resources to digital documents for web publication as a central part of its services. This project is managed by the staff of a relatively small library with a special collection. Their thoughts, decisions, and experiences can provide a significant and valuable reference for the development of other digital collection projects.

The most fundamental intention of the AFF digitization is to make the collection more accessible to users and more known to potential researchers (Wilson 2003, 90). Although every collection has its unique aim, to facilitate accessibility and remove the restriction of physical location has been the primary incentive for most digitization projects so far. Here is how the process works: AFF frequently send the paper copy documents to an outside vendor; the vendor scans the documents, undertakes the Optical Character Recognition (OCR) process, compresses the files and creates the metadata according to the library's specific requirements, and uploads the PDF (Portable Document Format) files onto the web server. After the library checks the metadata and PDF files, the webmaster of the library uses the search engine software to index each work and makes it available to public (Wilson 2003, 92).

Policy, Planning and Developing

Above all, systematic development plans and budgets need to be top priority when digitizing resources. Because of the huge budgets needed to initiate and maintain a digital collection, the institutional pioneers in digital development have

all been large academic research libraries and government-funded agencies (Wilson 2003). The expensive undertaking of converting physical materials to digital resources presents both challenges and opportunities.

Canada's Digital Collections, created between 1996 and 2003, is one of the largest sources of Canadian content on the internet. More than 600 collections are available online, celebrating Canada's history, geography, science, technology, and culture. The most unique point of this project is its use of thousands of young people to create digital collections, as part of the Government of Canada's Youth Employment Strategy (Canada's Digital Collection 2005). Relying on thousands of people to work for the *Peel* project in this way may not be realistic, but the principle of cooperation and teamwork can apply. Partnership with educational programs to get tangible staff to work on a digital project, such as helping with usability studies, is a very valuable point for further exploration.

Cooperative collection development has been defined as "the sharing of responsibility of two or more libraries for the process of acquiring materials, developing collections, and managing the growth and maintenance of collections in a user-beneficial and cost-beneficial way" (Branin 1982). For instance, the University of California libraries had a long history of collaboration with Stanford University libraries with the Shared Collections and Access Program (Greenstein and Thorin 2002).

Although sharing resources usually means interlibrary loan (Johnson 2004, 236), cases in the literature imply cooperative development in digital collection projects. The Florida Heritage Collection demonstrates the feasibility and

attraction of libraries collaborating on a digitization project. Henjum (2000, 8) reported, as individual universities joined in the Florida State University System, each newcomer would naturally deposit the important documents from their locally-stored materials. Cumulatively, materials relevant to all aspects of the state of Florida have been stored, and transformed the collection as an academic centre. All the local materials on topics including arts, culture, history, sciences, and social sciences of Florida can now be freely accessed over the internet (Henjum 2000, 9). Also, the university libraries were partnered with the Florida Center for Library Automation (FCLA). The libraries themselves are responsible for the cost of selected materials, creation of metadata, and cataloguing these materials. All the work must meet the standards of the group. FCLA covers the cost of digital storage, creating, retrieval, and maintaining of the website (Henjum 2000). Significantly, this project provides an illuminating example of collaborative digitization, and could serve as a model for other institutions (e.g., collaboration between the University of Alberta and University of Calgary digitization teams).

Rationales for Collection Management

In an effort to solve all the significant problems of the digital collection, Institute of Museum and Library Services (IMLS) has pulled together a group of experts from different traditions and perspectives to develop a common framework for the successful implementation and management of digitization

projects (Machovec 2002, 1). From their research results, a host of principles have been outlined that could be applied to the *Peel* project:

- Collections should be described so that a user can discover important characteristics of the collection, including scope, format, restrictions on access, ownership, and any information significant for determining the collection's authenticity, integrity and interpretation;
- Collection should be sustainable over time. In particular, digital collections built with special funding should have a plan for their continued usability beyond the funded period;
- A good collection respects intellectual property rights. Collection managers should maintain a consistent record of rights holders and permissions granted for all applicable materials;
- A good collection provides some measurement of use. Counts should be aggregated by period and maintained over time so that comparison can be made;
- A good collection fits into the larger context of significant related national and international digital library initiatives; a good project produces a project report (Machovec 2002, 3).

They also pointed out that a good project has a substantial design component and an evaluation plan (Machovec 2002, 3).

Collection Analysis

Collection analysis has been addressed as one of the most effective and efficient digital resources management strategies. The point of assessment is that it can enhance understanding of how the collection has been used, in order to maintain and manage it for future development (Johnson 2004, 269). Basically, collection assessment techniques are divided into two large categories: collection-based analysis; and, user-based analysis. Each can use quantitative and qualitative methods. Furthermore, the literature indicates that there are five commonly used methods to assess the needs of the focused groups, which employ the activities

analysis, data analysis, decision making, problem solving, and empirical analysis (Evans 2000, 62). In particular, the activities analysis approach uses in-depth interviews to objectively outline the activities of the project. Data analysis, decision-making, and problem solving are methods to examine the information materials the study group used, each with a distinctive focus. Empirical analysis, in contrast, is to observe how users really intercommunicate with the information system (Evans 2000, 63).

Johnson (2004, 278) noted librarians are missing qualitative data about e-resources and they lack understanding of whether the resources have met the users' needs. In reviewing hosts of case studies, the researcher of this project found that most digitization projects lack systematic study of the usability of online collections. Neither do they have formally designed research on users' information behaviour in the particular digital collection context. Machovec (2002) noted that, as the environment matured in today's digital environment, to just deliver information digitally to users is no longer sufficient. The focus of research should shift toward how the content has been delivered effectively and efficiently. Therefore, this project was designed not only to track the history of the *Peel's Prairie Province* digital collection, but also to investigate the usability of this online collection and explore the targeted user's particular information behaviours in the specific context of a digital collection.

WEB USABILITY STUDIES

Introduction

According to the International Standards Organization (1999, 1), usability is defined as "the extent to which a product can be used by users to achieve specific goals with effectiveness, efficiency and satisfaction in a specified context of use". In particular, effectiveness means "how well patrons can achieve a goal"; efficiency means "how difficult it is for patrons to achieve a goal"; and satisfaction means "how comfortable and accepting patrons are with their results". More recently, learnability has been added to the usability definition, which in contrast to the definition of efficiency means "how easy it is for patrons to earn how to achieve their goals". In the web-based environment, usability refers to how effectively and efficiently users can navigate a website and locate relevant information, and how satisfied users are with that experience (Nielsen 2003, 1).

Jakob Nielsen, a well-known usability expert, has developed ten principles for web usability design. These principles are more like rules of thumb than specific interface-design guidelines. These ten principles are listed here in descending order of importance, covering every aspect of interface design, to give an overview of both usability design and assessment (Nielsen, 1990).

- The system should always keep users informed about what is going on, through appropriate feedback within reasonable time;
- The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order;
- Users often will need a clearly marked "emergency exit" (i.e. Home) to leave the unwanted state;

- Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions;
- A careful design. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action;
- Instructions for use of the system should be visible or easily retrievable whenever appropriate;
- Allow users to tailor frequent actions;
- Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility;
- Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution;
- It might be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large (Nielsen 1990).

As Nielsen and Norman (2000, 1) found, most websites are difficult to use, and usability testing success rates are normally less than 50%. For example, they found that both Hewlett-Packard and Canon Inc. failed to provide the most frequently visited link of "how to buy a printer" on the first page of their websites. The usability of commercial websites is essential, as users first experience usability then decide about purchasing or not. Nielsen and Norman reveal the fundamental difference between physical and virtual purchasing makes the online commercial competition only a mouse-click away. In the library website context, a library website must make users feel comfortable navigating it, just like "[having] the physical library door unlocked for all the potential patrons" (Graham et al. 2003, 33).

Usability Testing in the Library Environments

Genuis (2004, 161) noted that literature about usability studies has proliferated since 1990, but it is only in the last few years that studies on the usability of library websites have burgeoned both in the literature and on the internet. To "upload" a library onto the internet and make it totally virtual is not only expensive, but to a large extent the application of this technology is still vague: since the expectations and needs of the library patrons change in the digital environment, the role of the digital library has not been made clear yet. The Digital Library Federation has suggested that most digital libraries are still relatively immature in this area (Covey 2002, 1).

As digital libraries still lack enough experimentation of how users communicate with the virtual library, they also lack a multidisciplinary concept of how to make the library website more user-friendly to patrons. In the era of internet convergence, the inclusion of usability studies on the digital libraries' agendas is more urgent than ever.

Market research methods such as focus groups and targeted customer satisfaction surveys often have priority on libraries' service research checklist. However, Nielsen (2003) indicated that traditional market strategies are not good at dealing with the user's interface questions. He concluded that if you just gather hosts of users together in a room, they would sing high praise for the fancy multimedia demos of the interface features without solid experience of interacting with the new information system. Nevertheless, when these users are relocated in front of a computer and assigned the same tasks, they will otherwise experience numerous concrete troubles.

Genuis (2004, 163) also noted that clusters of publications related to usability of academic library websites indicated that usability testing must be an ongoing process, from the initial design stage through the site's development. Usability testing methods in a library context are generally divided into two categories. The first is the usability assessment from the site designers or experts, which is usually adopted during the early design phase. The second category is usability testing with real users, which is more suitable for the after-design process. Correspondingly, the assessment methods at the early design stage can be categorized into three sub-methods: analyzing users' activities with the data of web logs; site designers or experts walk through the site by themselves with their own pre-designed realistic tasks; a small group of evaluators moving through the site and assess it according to the heuristic evaluation principles. The real-user data-generating testing process can again be sorted into four specific sub-themes: clustering and labeling exercises, which particularly explore how people group aspects of the site together; questionnaire, task-based testing by gathering demographic data and user perception; formal usability testing, where data are typically collected by observing the user moving through the system with predefined questions and tasks; and, focus group testing, which involves face-to-face discussion of users' experiences using a particular interface. The focus group method is often regarded as the preliminary technique of task-based usability testing. For instance, Nielsen (2000) reports that the best usability test results come when the test is conducted with a small group of users with distinct profiles. Graham, Poe and Weatherford (2003, 38) used this technique for formal usability

testing on the redesign of the Jacksonvillle State University Library website. They claimed that the new website turned out to be clearer, easier to navigate, and more user friendly than the original.

The Yale University Library (1999) completed two usability studies of its *Research Workstation* website, which is the primary gateway for their researchers. When they first build the *Research Workstation* website in 1994, it was just a very simple interface with links to online resources and some library services (Prown 1999, 2). After a robust 1996 revision, they built up the major design for the current version (see http://www.library.yale.edu/pubstation/workstat.html). They conducted usability testing heavily relying on Nielsen's guidelines, using a qualitative methodology which they felt met their needs considering their limited available resources. They concluded, "we needed substantive feedback on the current *Research Workstation* and wanted to hear ideas from users about what they wanted" (Prown 1999, 2).

Detailed exploration of the heuristic evaluation is immensely worthwhile for the early design phrase, which solidifies the primary chunk of usability testing. But the existing literature shows that many libraries employ the guidelines during the later data-gathering stage as well. Initially, the ten points outlined by Nielsen can be universally applied to all types of websites, whether commercial, academic or government.

In the specific context of the library website, Davidsen and Everyl (2004) have developed guidelines from Nielsen's heuristics to match the new context. First, the online library should be able to mirror their particular physical library,

keeping things consistent, so that the patrons can understand what the site is about and not get lost so easily. Patrons would also be familiar with the library guidelines. Second, the surroundings and items should be familiar and clearly displayed so that the patrons can navigate well; the interface elements ought to be kept simple and encouraging so that the patrons are not overwhelmed by the information. Third, the site should not promise the patrons something which will not or cannot be delivered. The site must be designed to allow the patrons to discover their own place rather than push them here and there. Finally, there is a recommendation to provide a "help" link in an obvious place to assist patrons to recover from their mistakes and solve problems as soon as possible (Davidsen and Everyl 2004, 10-12).

Bridge: From Web Usability to Information Behaviour

As the internet continuously permeates everyday life, the competition of delivering all sorts of information partially moves onto the website. Commercial companies diligently engage in web usability testing (e.g., BBC), aiming to build superb websites to induce more customers to purchase their merchandise. Having rivals like Google, Yahoo and many other search engines, digital libraries have already accomplished successful usability testing projects, particularly focusing on the search engine. However, the digital collection website, as a unique type of digital library, is yet to be explored extensively. This project uses the *Peel's Prairie Provinces* website as an example of a digital collection whose usability has never been tested.

Although usability testing of the *Peel* digital collection is neither the primary aim nor a sub-task of this project, investigating HSS scholars' information behaviour in the context of online collections relied on the usability testing methods. Therefore, data from this study could be beneficial to any possible redesign of the *Peel* website, or the design of any similar digital collection.

SUMMARY

While digital resources are becoming more available in humanities scholars' academic lives, use of these resources by scholars remains limited. Both humanities and social sciences scholars have come to rely on computers and electronic communication for some of their daily work, but the use of digital information resources is still far from optimal. Understanding their information behaviours in the new context of the digital environment and their adoption of new technologies essentially requires more research.

While a partial aim of this project is to provide a theoretical foundation for developing human-centred criteria for guiding digital library development, this study primarily focuses on HSS scholars' information-seeking behaviours in general, and particularly on the web-based digital collection context by exploring what scholars do during their research process and how they depend on libraries to follow their paths of inquiry. Through the analysis of scholars' practices, the goal is to conceptualize the information environment that would best support their

activities and begin to clarify priorities for the development of rich information environments that are responsive to the context of their scholarly research work.

Chapter III Methods

INTRODUCTION

This qualitative study is an investigation of humanities and social sciences scholars' information behaviours in the context of their general academic work, their use of web-based resources, and their use of digital collections as a research context. Based on the models shown in Figure 1, the main purpose of this study is to explore three themes:

1) To investigate how humanities and social sciences scholars think about, organize, and perform their academic activities in the context of general academic research work;
2) To examine the role of web-based resources (and digital collections, in particular) in these scholars' academic activities;
3) As a particular context of the digital collection, to explore the web usability and usage of the *Peel* website, to investigate features that could be incorporated in this digital collection website to make it more useful for this target group of users.

The current chapter discusses the methods of data collection and analysis used to gather and interpret the data and reach the findings. The goal of this study is to collect in-depth data and craft a holistic picture of how humanities and social sciences scholars conduct their general research work. In particular, with the on-

going maturation of internet technology and the digital library, this study explicitly emphasizes an in-depth understanding of HSS scholars' adoption of new technology, crafting interpretations, and exploring their behaviours in this specific context. Thus, a qualitative inquiry was chosen as the appropriate method to conduct the study.

Qualitative Inquiry: Theoretical Concepts

The nature of the study, the purpose of the research, the exploration process and expected outcomes fundamentally determine the research methods of any kind of study (Silverman 2000). If the aim of the study is to describe and interpret the themes that exist in the interviewee's life sphere, qualitative inquiry is an effective method to follow (Kvale 1996, 100).

In contrast with the dedicated methods of quantitative inquiry, which are concerned with the quality, frequency, density or even intensity of data, in-depth collecting, interpretation, linking and crafting is the essential foundation of qualitative research. Creswell (1998) defines qualitative research as

> an inquiry process of understanding based on distinct methodological traditions of inquiry that explores a social or human problem… and the researcher builds a complex, holistic picture, analyzes words, reports detailed views of informants and conducts the study in a natural setting (15).

The definition of qualitative research denotes the fact that it is largely inductive rather than deductive. Inductive research is designed neither to test hypotheses, nor to prove theories, or identify cause-effect variables; rather, it is an on-going process to uncover the disseminated pieces of evidence and try to construct and shape them into a whole picture of events (Creswell 1998).

Choo et al. (2000) note,

> when we treat information as an object, we are concerned about how to represent the information in order to enable access. While we treat information as a subject, we are more concerned about understanding the human and behavioural processes and how the information is enacted and engaged (3).

Based on this point, this study fundamentally employs qualitative research methods. Unlike quantitative studies, qualitative inquiry treats participants as insiders working together with the researcher to re-examine and produce knowledge.

Denzin and Lincoln (1994) point out that qualitative "researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of the meanings people bring to them" (2). Thus, this study gives voice to scholars' experiences in their own words, describing their experiences and understanding of themselves, interpreting and establishing meaning from it.

Sampling and Recruiting Participants

To further explore the information-seeking behaviours of humanities and social sciences scholars in the series of contexts, this study uses in-depth interviewing methods to gather scholars' opinions and preferences related to their academic work. The demands of collecting and analyzing such rich data limit the number of participants interviewed in the project, but the patterns and themes that emerge from the findings lead to the findings and discussions of this project and future research.

Maximum variation sampling can generally refer to both sites and people (Tagg 1985). The participant selection criteria are based on the consideration of maximum variation to achieve a broad representation of gender, research experience, and academic discipline. Participants came from a range of disciplines in the humanities and social sciences, including typical humanities disciplines such as english, modern languages, cultural studies, and comparative literature; social sciences disciplines included educational instructional history, history and classical studies, native studies, and human ecology. Among the sample of 9 participants, the study involved 2 males and 7 females, with the exclusive consideration of research experience, ranging from the beginning researcher (a postgraduate student) to senior scholars with over 10 years research experience.

The case study site is the University of Alberta, with research subjects being humanities and social sciences scholars. The participant selection criteria have been set for the sampling of this study to achieve a variety of benefits, including the discussion of "common informational services and resources, a shared context for academic requirements, and a common social context" (Given 2002, 20). It is also important to note that the research practices of humanities and social sciences scholars may differ when conducting research versus preparing for teaching work. Therefore, the results presented are not restricted solely to research, as some of the interviewees were also teaching courses at the university.

As the study focuses on the *Peel's Prairie Province* digital collection, users of this resource were actively recruited. An email advertisement (see Appendix II) went was sent to target scholars' groups as wide as possible, using the snowball

technique. The *Peel* project development team members passed the research advertisement to faculty members and other researchers who use this digital collection. Furthermore, the call for participants was included in the Graduate Student Association newsletter to make sure that all the graduate students in the university were targeted.

It is possible that the individuals who volunteered for the study might be more familiar with electronic resources than traditional scholars given their willingness and confidence to participate. However, this should not be regarded as a shortcoming as the goal of the study is to investigate their particular contextual behaviours, not to profile a HSS scholar in general.

Semi-structured Interviews

The in-depth interviews used a semi-structured interview protocol and each lasted approximately seventy minutes. The study included one-on-one, face-to-face interviews with 9 scholars and 2 librarians; all interview questions were designed to be open-ended. The time and location of the interviews were arranged for the participants' convenience. All the interviews were audio recorded and fully transcribed.

The participants were first asked to read the information letter (see Appendix III and Appendix IV), which contains all the information about the project and their participation, before signing the consent form (see Appendix V). During the first part of interview process, scholars were asked questions (see Appendix VI) targeting their information behaviours in the general research context and their

opinions about web-based resources. During the second part of the interview, participants were situated at a computer screen and answered questions focusing on their information behaviours in the context of the particular digital collection as they moved through the site, explaining their opinions. During this phase, the researcher also designed two types of question sheets (see Appendix VII and Appendix VIII), for users and non-users of this particular digital collection website, although all of the participants had experience using some digital collection websites. In addition, special interview questions (see Appendix IX) were created for the librarians to document the creation and management of the *Peel* project.

Ethics Issues and Data Analysis

This study was officially approved by the Faculties of Education and Extension Research Ethics Board (EE REB) at the University of Alberta. All the recorded interview data will be kept securely for at least five years following completion of the research and then will be destroyed. The participation and involvement of the all the participants were completely voluntary. All of the participants were asked to sign the consent letter, which outlined their rights as a participant and noted that all of their information would be anonymized. They also had the right to opt out during the interview process at any time. The ethics review process not only protects the scholars but the librarians as well. In the data analysis process, all participants were assigned pseudonyms to be used in publication to protect their privacy.

Data analysis involves analyzing the transcripts of the recorded interview data. If the interviewing stage is the process during which researcher and participants have been working together to produce original data, the analysis stage demands that the researcher approach the data alone. This is the most crucial stage of the whole project, which demands that the researcher weave the most diligent thoughts into thematic links, crafting meaning and eliciting potential coherence from the ideas and experiences of the participants. During this process, the researcher read, labeled, categorized and reviewed the data several times to make sure the constructs, categories, explanations, and interpretations answered the research question. Every research method has it limits and its strengths. The strength of the in-depth interviewing is that it allows us to understand people's experience from their own perspective (Seidman 1998, 103).

Chapter IV Findings and Discussions

Solo Scholars

Stone's review (1982) fundamentally reexamined questions about research behaviours in earlier work on humanities scholars. She portrayed the humanities scholar as a researcher "who works differently in terms of time-scale, approach to material, the age and form of material required, and the extent of immediate contact with other researchers" (295). The historic profiles of humanities scholars are still partially suitable for the scholars of today, including the following: they work alone, do not delegate research tasks, and their research process is more inclined to be "private", "contemplative", and "intuitive" (Green 2000, 201).

The systematic investigation of humanities and social sciences scholars' information behaviour still confirms this portrait in general, though particular detailed interpretation provides more specific analysis. The evidence shows that senior scholars are "contemplative" and "private" looking, while junior scholars still need help from their supervisors to a certain extent.

George is an Associate Professor in the Department of History and Classics who has about 16 years of teaching and research experience. His research interests entail the nineteenth and twentieth century Métis society and politics, the missionary west oblates, and settlement of the west. He notes: "I'm doing research by my own self; I am not teaming up with other scholars. Of course, I know someone out of this university working on some similar projects. We have contact through email, but I am totally doing my own research."

Marianna is currently a graduate student in the Department of Human Ecology in the Faculty of Agriculture, Forestry and Home Economics, who has a background in history, women's studies, and museum studies. Her research interests are the creation of meaning and identity through home sewing. Marianna described, "I pretty much do [my work] by myself. I've talked with my supervisor a few times and sometimes probably friends in the same department."

The junior scholars more commonly required assistance. Katherine is a graduate student from Comparative Literature Studies; she has about 3 years' research experience, and her research interest is Chinese Canadian literature. In responding to this issue, she noted without hesitation, "Definitely, my professor gives me a lot of recommendations, what I should read…. "

Though partially aligned with Green's (2000) finding that "humanities scholars prefer to work alone" (226), this new analysis shows that in the new information era, scholars are also looking for the easiest way to locate useful information. Assistance from colleagues and professors might be the best way to do this as it saves time in terms of information overload.

Information Resources

The information resources HSS scholars use for their academic research work cover a range of types, including books, journal articles, newspapers, government records, and even microfilms. The types of resources they referred to are fundamentally determined by the nature of their projects, and have almost no direct relationship to the academic disciplines.

Aimee is an Assistant Professor from the Faculty of Education with approximately 15 years of research experience; however, strictly speaking, she is a history scholar. Her research area is largely the history of education in Canada, including the history of curriculum and instructional practices in schools. Her discussion about research-related information resources provides a vivid description of the phenomenon:

> I use a variety of resources in my research work. I used a lot of policy documents to establish, for example, what particular curriculum actually and officially was. So I studied Alberta government documents and policy statements, I also looked at the authorized textbooks that were created for programs. I looked at the other teaching resources that were developed by the Alberta Education. Oh… I do use newspapers in order to get sense of public reaction to curriculum change or even to establish public understandings of schools and what's happening in school. I use journals, say, teacher educational journals, the Alberta Teacher Association, to get a sense of how state codes in the professional community respond to governmental policy… yes, I do use images too. As sources of data…It really depends on the nature of the research questions… research questions, identifying resources, retrieving information from various resources, and started it all over and back…

The essence of Aimee's comments was echoed by Marianna, who commented:

> The information about home sewing is very spread out; I've used a lot of archive resources. My time period is in 1950s, 60s, so women magazines, newspapers, but also journal articles …a lot of that when I've been looking for stuff that about museums, oh, there is hard be anything about museum online, most of it, all physical journals that I had to go to look at it. Actually, I've been using lots of anthologies, that have been collections of articles, and a lot of them are related to coding and textile, dress and culture.

Furthermore, the results of the study revealed that even if scholars are from the same discipline, when examining different research subjects they still need to choose the information resource in the specific context of the individual project. In addition, they may be limited by the availability of materials. For example,

scholars from history and the School of Native Studies, who overlap in their research focus on historical materials, can be described as working in the same research field. However, one scholar may focus on government records while the other primarily uses journals, depending on the research project.

Ervin is a graduate student from the Department of History and Classics. His research interests are western-Canadian history. He uses "mainly books, a few other scholars' personal journals…" In contrast, Lavender, a Ph.D student form the School of Native Studies, gives another view. She has approximately five years' experience conducting archival research, and her focus is on aboriginal and economic history. In the following, she discloses how the nature of the research questions determines the information resources using the example of her current specific research project:

> Sometimes, I use newspapers, especially historical newspapers, just a lot of archival materials… records from government province; I am currently working on the Bay Company project…I have some [Hudson's] Bay Company materials, so posts, journals, archives and books…Bay Company kept journals for every post so they record what was going on the post everyday.

Although the information resources used by researchers are diverse and largely determined by the nature of the research questions, books and journals have been found to be the most frequently used resource, especially as secondary resources. No matter how diffuse the types of research materials in terms of the difference in research projects, interests and fields, all the interviewees ranked journal articles and books as their most frequently-used secondary resources. It could be interpreted that junior scholars rely heavily on the secondary resources of journals and books, while senior scholars spend more time with primary

resources such as newspapers, archives, and graphics. This analysis is in line with Green's (2000, 205) comment that books and journals were cited as the most frequently-used research materials among HSS scholars, noting that there was no apparent evidence showing which type is used more heavily.

Adapting to New Technology

With the advent of the internet, electronic resources have become indispensable research tools, for scholars in all the disciplines. However, as humanities and social sciences scholars have been long regarded as major users of the physical library (Reynolds 1995), many years after the adoption of the new technology by many libraries, their information behaviour in the context of new digital resources has yet to be scrutinized. In analyzing the findings of interviewees' information behaviours, examined in the sections that follow, several major themes have emerged including: physical versus digital resources, images as data resources; information-seeking and evaluation; information literacy; and, the roles of librarians.

Physical versus Digital Resources

Every scholar in this project agreed that his or her research approach has been changed by technology. Their opinions, to a significant extent, reach consensus that internet access makes their research more efficient and information more accessible in a very positive way, especially for those projects based on archival

materials. Lavender commented "it allows you to do research at a local place and you don't always have to go the actual places owning the archives."

On the other hand, none of the HSS scholars believed that physical materials and physical libraries could be completely replaced. Bonnie is a graduate student from the Department of Modern Languages and Cultural Studies (MLCS); she has a background in French, Spanish, Italian, and other romance languages as well as cultural studies. Her research interest is rooted in language. She explained,

> I wouldn't put all my emphasis on the internet because I like to have things in my own hands… books can never be completely replaced. Now I have reliable databases, which I can go through as a graduate student; but if I leave university…physical books are easier.

Similarly, Ervin expressed a fondness for the library "because I really like the place".

Natalie is a more junior scholar from MLCS. Along with her research interest of romance language and computing, she also teaches French. Her thoughts are similar to those of Bonnie:

> I still prefer the physical resources; I can hold something in hand. I'm used to reading physically. Maybe, I've got used to reading physically. Maybe future generations, they will get used to reading online… my students? They still like to have the books. For me, I am teaching French; my students need the books to refer to all the time… For language, online is okay to learn. But people like to have the books to learn the new language; because for learning the second language, you need a book with you whenever you get lost so you can go back and look for something. But if you go online, you might have a website with everything there, but you don't know where to go.

Online resources to a large extent act as the search function for access to physical materials like books, old journal articles (i.e., which are not available online) and microfilm. As Lavender commented, "I inquire into a database first to

get the reference number for the microfilm, then I go to the library." Ervin expressed: "Online resources are good for short things… it's almost impossible that I have to access online books…hundreds of clicks to read one book. Searching for the books can be online, but research within the book should be physical."

Humanities and social sciences scholars have a spectacular fondness for physical material, a characteristic, does not appear to be generationally-based. Even for resources created for online use, such as e-journals, they still prefer physical items. As Ervin said, "I do like e-journals, because ease of access… I can download or print them out." Bonnie echoed this, saying "I get tired from reading on the screen; I would rather print stuff."

Images as Data Resources

Images, as regular sources of data, are of particular importance in some HSS research and studies. In contrast with the traditional description of humanities researchers saying that "they are using books and older material, use mainly monographs" (Soper, 1976), this project focuses on special use of diverse resources and also emphasizes the indispensable reliance on the image. Several scholars articulate the scholarly use of images and graphics as data. Aimee explained,

> when you look at the pictures, for example, the picture of the entire classrooms, if the boys [are] sitting in the front or the girls are sitting in front, that tells me something, if the children are sitting in rows looking at the teacher instead of group, that tells me another meaning, so I used the images to find more about the teachers, classrooms and instructional strategies.

Furthermore, in the particular context of digital resources, Marianna illuminated that images contain searchable information, which can guide and help to locate search terms. She explains, "I use images online to get sort of the ideas that what time period this sewing pattern (one of her research projects) might be from, so you can look at similar images within the same period of time, just on different websites."

These experiences and thoughts highlighted the importance of digitized images, in addition to text resources. In the context of traditional physical resources, scholars get information from the images as described; however, it might take a relatively long time for scholars to locate similar information resources without the electronic search function. According to the Wilson's (1999, 257) information model, without the electronic information resources, this information-seeking behaviour will be an ongoing search, or sometimes the information needs cannot be satisfied, and the process will loop again.

Information Seeking and Evaluation

Moving beyond the general discussion of the use of electronic resources across all type of media by HSS scholars, it is possible to discuss implications for practice in academic libraries. Wiberley and Jones (2000) studied humanities scholars' use of electronic information technology. Their findings suggest that humanities scholars gradually become more involved with electronic technology, but their involvement will be influenced by consideration of who directs the creation of the material they use.

The way HSS scholars locate and evaluate information resources has some marginal conflicts with the results of Green's (2000) project that HSS scholars generally prefer informal approaches when seeking information. From this project's findings, when scholars begin a new research project, colleagues would be their first information channel to locate secondary research resources. They also ask for help from librarians; after that, they might go online and narrow down the original information.

Regardless of whether they are junior or senior scholars, no matter which discipline they were from, all the interviewees spent their time searching for the secondary resources. It is not surprising to find that footnote chasing, the process of "locating useful information by searching the reference sections of other papers (Tubre 2001, 8)", can be still ranked as a very popular information locating method.

Also, it has been found that many HSS scholars like to print out the electronic files. As Natalie noted, "I prefer printing articles out. Online ones keep changing, new things coming all the time… if I print out, resources can be always there. We can preserve it, but [an online resource] comes and goes, it's difficult to preserve."

There are also indications in this study that agree with Green's (2000) finding that humanities scholars locate literature by following bibliographic references from documents already known to them or their colleagues. The powerful searchability of digital technology has positively facilitated this searching process. As Margaret notes, "it's a combination of many ways. Sometimes I find things in

a bibliography, if I look at the article in MLA index and there is reference to another article." However, this study found that this strategy was no longer the first choice of the scholars interviewed here. After many years' adaptability, HSS scholars are becoming more comfortable with their ability to manage the digital search tools (e.g., open public library catalogue, database search tools). As Aimee says, "I typically begin with online search with library archives or library literature. But when it actually comes to identifying primary resources, for historical research, more likely I search through online national archives." Aimee's behaviour is further illustrated by Bonnie's comments "First, I go to the library catalogue; if that doesn't work, I go to specific search engine sites. Primarily, I use UofA search engine, then Google."

Although scholars have different methods to evaluate different kinds of information resources, this is a theme that comes across at all levels of research experience. Further investigation of this could improve our understanding of the way that scholars evaluate the materials in order to more efficiently use potential resources. First, the very basic rule scholars follow is to rely on other authoritative resources to evaluate the credibility of the materials at hand. As Aimee commented, "we use authoritativeness of the voice we are hearing, we look for confirmation from other resources." Natalie added "well, sometimes there are reviews for the books; sometimes, there are authors who are well-known." Second, scholars rely on the writing and layout of the material to determine its reliability. Some of the scholars use abstracts to help them evaluate article-size material. They have faith in library-subscribed information (i.e., subscribed journals,

subscribed databases) more than other sources. Bonnie purposely mentioned "If it is a well-known book, I accept what I read. But if it's a general resource, I will try to find another resource that agrees with it. It's the same as translation, I have to go through several resources to decide and make judgments."

In Wilson's (1999, 257) general information behaviour model, information seeking and use were the most important stages of the entire integrated loop. As discussed in this section, the development of electronic resources has facilitated the scholarly information-seeking process and use from an academic perspective. The continuous growth of digital technology enhances the academic libraries' needs to further explore HSS scholars' research information behaviours in this context.

Information Literacy

Although the physical place of the library cannot be replaced, HSS scholars have shown a trend to devote time and energy to online research; if online resources can offer them as much as they expect, they would prefer to use online resources. Margaret, for example, is a doctoral student from the English Department with about six to seven years research experience. She is interested in Canadian popular print media and Canadian publishing. As she commented about the influence of the development of technology, she said,

> I think it's quicker for sure, I think expectations are probably higher too. I could be wrong, but I feel technology has already been there. I talked to the people who are older than me, because the information is more relatively acceptable, it's just the way you access it…they make researching easier than anytime ever…

Lougee, Sandler and Parker (1990) studied humanities scholars' attitudes about and behaviour toward technology. They found younger, junior scholars were more likely to use online databases and to be positive about technology. However, this research here has found a complementary point of view that HSS scholars' information literacy is another obviously important factor that influences their information-seeking behaviours in the context of digital resources. For instance, Bonnie, prefers physical materials: "I like to have things in my hand"; she also commented "For me, to find something useful from the internet took a while." In contrast, senior scholar George explained "I would choose online unless I was limited for the physical resources." It is reasonable that younger scholars could be more positive about technology, but that does not necessarily mean junior scholars have better information literacy skills than senior scholars.

This researcher finds that scholars who have comparatively better information literacy skills would be more inclined to use online resources, disregarding other situational factors. The American Library Association (2005) defines information literacy as "the set of skills needed to find, retrieve, analyze, and use information;" information literacy includes "the technological skills needed to use the modern library as a gateway to information" and it "enables users to analyze and evaluate the information they find, thus giving them confidence in using that information to make a decision or create a product" (2-3). Furthermore, it should be noted that Lougee, Sandler and Parker's project was in the early 1990s; at that time, scholars' information literacy was not a common

study focus. At that time, electronic resources were just emerging and it could be understandably possible that younger scholars were quicker to accept the new technology compared to senior scholars. However, more than ten years later, this project finds that electronic resources are integral to the research process. As Brockman et al. (2001) point out, "age had little to do with the skills" (20).

In summary, libraries have arrived at the conjunctive point of consolidating more electronic materials and resources. Precisely, physical and electronic resources both have been shown to necessarily co-exist in the library domain. The advantages of easy accessibility and indexing of the electronic resources have helped them gain acceptance, though they cannot completely replace physical resources, given the special fondness of the HSS scholars at this point of time. While most of them use online resources more often, online resources are not these scholars' final intention. Most of the HSS scholars admit they use the online library only because of the ease of access and convenience, while continuing to use many print-based resources.

The Roles of Librarians

Along with the ubiquity of internet technology, the scholars' relationships with librarians form a special part of their research information behaviour. HSS scholars' relationship with reference librarians, has been stepping into a new age. An apparent trend is that HSS scholars have become less reliant on the physical reference desk, so when they need help, they consult online librarians twenty-four hours a day. Natalie uses the "online librarian" most frequently, and she

comments "Usually when I have questions, I chat with the librarians… I don't have to go to library. I chat with them online. The 'ask the librarian', it's [available] 24 hours." Although all the scholars confirmed the helpfulness of reference librarians, this no longer necessarily means the traditional in-person librarian. Scholars are getting used to making queries through online methods, which they believe has no restrictions in terms of time. Compared to senior scholars, junior scholars more heavily relied on reference librarians.

The Context of Digital Collections

In the context of the interviewees' use of digital collections, both users and non-users of *Peel's Prairie Provinces* were involved in this research. Although several scholars were not users of this particular digital collection, they had experience using other similar digital collections. By examining the opinions of users, we can get a view of their information behaviour, to design a better system to meet their needs and to benefit research. On the other hand, it is useful to understand the current non-users' information behaviour in order to design a site that could entice more potential users. In addition to answering questions about the design of the digital collection, the scholars were observed going through the site.

Content is Crucial

The content of any archival database is fundamentally important; the most basic point referred to by the researchers is whether it falls within their research

scope. Wiberley and Jones (2000) noted that "content is often fundamentally related to decisions humanities scholars make about expenditure of time with electronic information technology" (427). This point has been substantially emphasized by all the scholars in this project in a variety of ways, including an expert user like George:

> I don't have any problem using this site; the only thing I would request is if they can add more content. I know they've been doing that, but I just expect if they can add more. The more they add into the database, the more I can get.

As the content of the collection is of utmost importance, the route that users follow to access the content becomes tremendously valuable. In particular, on the home page, near the top, the sub-link "About the Site" provides a concise description about the content of this collection. Faye is the project manager for the *Peel's Prairie Province* digital collection projects, and she has more than ten years of reference experience. In the following, she explains the rationale behind the link:

> I do think "About the Site" is important, because it gives the users the scope of the work, there should be more information here, quite frankly, to better explain what we've digitized and where we are, because everything we have been doing so far is textual, we haven't been doing with sound file, there is one or two things we've done largely image related, but there is very little of that. But this is the intention it was to give the sense of the scope of the database, geographic coverage, the time period, formats; I've been over 10 years at the reference library and I know one of the first things I need to know when I am looking for the database is its scope. So I think state and scope is very important

Astonishingly, with the exception of the very senior users of this collection, the other scholars complained that the site lacks a very clear description of what is there; this may show the "About the Site" link has usability problems to precisely

deliver information to the patrons. When being asked what the site was about, these scholars could give a satisfactory answer, which shows they understand the site's goal, but not necessarily because of the links provided here. One source of confusion, for example, is another link called "Collections". All the scholars in the projects have had digital collection experiences before, so they first reviewed the "About the Site" link to find out about the content of the site (see Figure 3). But for newcomers, when they navigated back to the homepage and saw the link "Collection", they were confused about what collections were included there. As Ervin noted: "why do they have a link called 'About the Site' and another header named 'Collections', again?"

Furthermore, through observing the scholars using the site, in response to the question about their understanding of the content and scope of the digital collection, some users did not refer to the introduction on the webpage. Instead, they went directly to the search box. It appears that some users simply jump in and rely on preliminary search results to decide if the site falls within their research scope. Marianna is one typical example of this type of user. She went directly to the search box, type in a broad subject, selected the basic search, and then came up with a host of material. She quickly browsed the results and said, "I think, part of the problem is that, what I am looking for isn't here… oh, wait, oh, I didn't look at the "about page". So maybe this would tell me more." Possibly, going directly to the search function saves more time than looking through the introduction of the site.

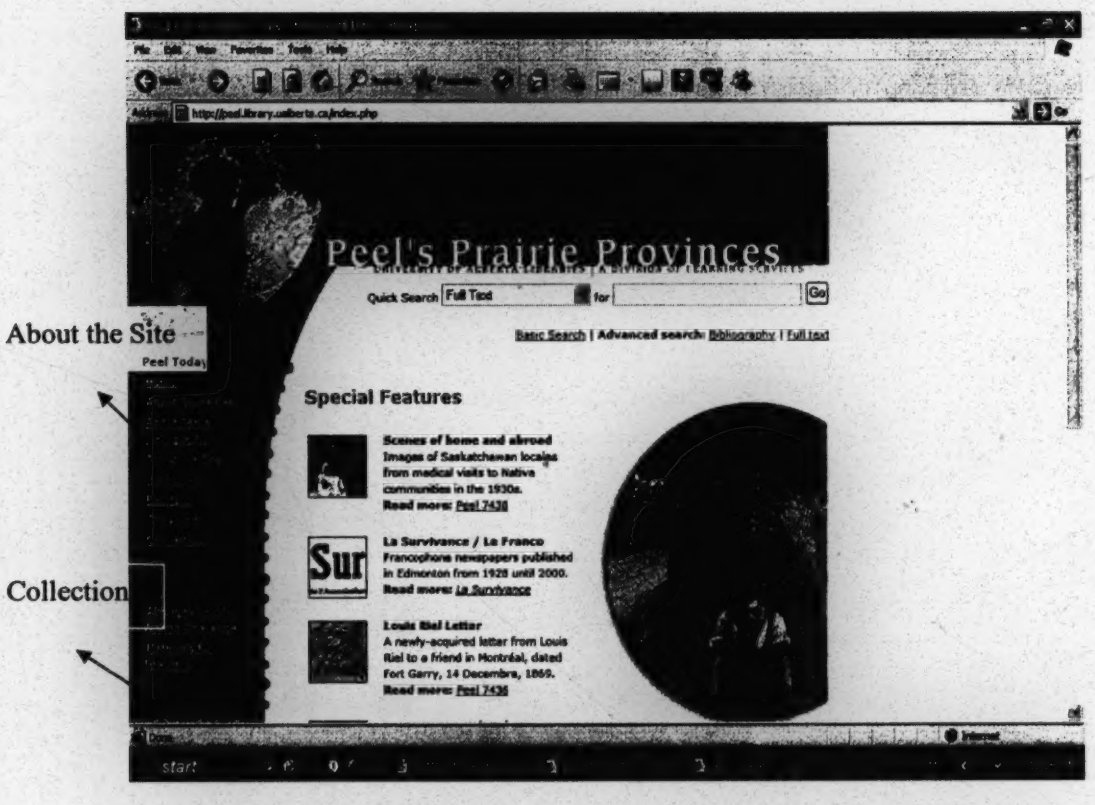
About the Site
Collection
Peel's Prairie Provinces
Quick Search
Full Text
for
Go
Basic Search | Advanced search: Bibliography | Full text
Special Features
Scenes of home and abroad
Images of Saskatchewan locales from medical visits to Native communities in the 1930s.
Read more: Peel 7438
La Survivance / Le Franco
Francophone newspapers published in Edmonton from 1928 until 2000.
Read more: La Survivance
Louis Riel Letter
A newly-acquired letter from Louis Riel to a friend in Montréal, dated Fort Garry, 14 Decembre, 1869.
Read more: Peel 7436

Figure 3 Screen Capture of *Peel* Site with Analysis of Usability Problems (Used with the permission of the site developer, see appendix I)

Search Features

The search function of a digital collection website is very important. Although it is often assumed the user would learn the content from the description to start getting involved with the site, as mentioned above it is not always the case. Some users are more inclined to see what the site is about through searching. It is interesting to find they largely rely on the searching results from the site to decide if they should continue to use the site as a research resource. However, advanced users expect more information about the search function. George noted "Different

ways to search… precise search term…it becomes quite time consuming to figure out how my structural language fits into the database search term".

As Ervin specified "Any search features [set] as default will make me think they are important. Full-text search function here is wonderful, why don't they build it as default search function?" Also, in the following, Marianna highlights her experience, which illuminates a unique branch of information behaviours in the particular context of digital collection.

> Oh, I once was looking for some books about the history of patterns about Alberta, but it wasn't here, actually, I think I did this search for sewing, and it didn't come up with anything, I did try "women" before, but that wasn't the time period I was looking for… it would be interesting to know what's their key words for searching are, and I have no idea how I would find that out. I found a lot of sites, if you put name and date, it doesn't work, and that's frustrating, because if it's historical period, I would be nice to be able to just limit your search just to the date you are looking for, but (digital collection) websites don't seem to work that way.

In digital collections, designed for historical use, the search function of an historical period is an extremely meant to be extremely important feature. Though many scholars mentioned this, the *Peel* site has not paid enough attention to this point, nor do many other digital collections according to interviewees' experiences in this project.

Consistency of Behaviours

Wilson (1997) suggests that everyone maintains a set of habits for keeping his or her internal mental model up to date. Such routines could include scanning the mass media, conversations with friends, and personal observation. Although these activities are not directed at addressing specific information needs, useful

information is often encountered in this incidental manner. The findings in this study throw increased light on the information-seeking behaviour consistency of each individual researcher. For instance, there is one scholar, Ervin, who explained, "I think this collection did a good job. I get used to the search box is the right top; they did that." The reason they get used to right-top search, to a certain extent, is because in general, most library websites are designed according to this principle. Scholars have already formed this "habit" even when they get access to a whole new digital archive collection website.

Although it is not necessary to maintain consistency of layout throughout a site, the research would suggest that consistent layout with the University of Alberta Libraries website is desirable for users. As Natalie specifies,

> For me, I am more used to the information on the right or at top. This site's layout is totally opposite from the UofA library website. But it's part of the University of Alberta libraries, so I am sort of expecting it the same design as University of Alberta library website, or at least similar.

According to Nielsen (2000, 224), "sub-sites should definitely not aspire to become independent sites with no relation to the parent site of which they are part and which should provide them with context and richness". *Peel* site, as a part of the University of Alberta Libraries websites, needs to consider how it can incorporate basic design elements of its parent page (see http://www.library.ualberta.ca) to make it meet users' the information behaviour consistency requirement better.

Usability Issues

From this empirical study, the aesthetic design for a digital collection seems very important as the appearance is the most obvious factor to differentiate it from other online database resources, like subscription databases. It is worth noting that as almost every interviewee came to the special collection website, their first comment was about the graphics on the homepage. They all thought it was very historical and suitable for the tone of a historical archive digital collection. Bonnie says, "This graphic is very charming (see Figure 2); I know this is a historical archive database from the first sight of it."

There was another major usability problem, namely the confusion caused by the links named "Special Features" and "Collections". A variety of scholars mentioned these several times during the interview process. For instance, Margaret insisted, "I don't really understand what the links named 'collections' mean, they should have a brief description of what they have done…" After clicking through the links under 'Collections', Margaret comments, "I guess I would be curious that how the label named collections would be different than the ones on the home page (special features). It seems they are completely different things."

Ervin questioned, "I don't understand the relationship between collections and search. Does that mean I search within the collection? It takes me a few minutes to figure out the difference between search in bibliography and search in full text."

Lavender emphasized the desire that whomever creates the database should have knowledge of specific terminology in the particular research area, because "scholars from different disciplines have their own way of thinking about search terms."

Scholars tend to expect the search function to be more visible and the most powerful function, such as full text search, to be set as default. There are also expectations that PDF versions of documents are provided, which can be saved and printed out later; as Ervin says "I can choose different view of each page, large size or small size."

Development of *Peel's Prairie Provinces*

In addition to interviewing HSS scholars to explore their information behaviours in the context of digital collections, the researcher also interviewed the developers, to elicit designers' points of views, and to document the development process of this digital collection. Faye talked about how the project started and explained how they made the decision to build it as a free resource:

> Going back a few years, about 2000, University of Alberta decided [to] get involved in digitization. We had a large committee formed called digital resources group, it included the people from subject libraries, humanities and sciences, and also the information technology group here, and that group was a lot of work to be done... We came up with some very important decisions at that point. One of the major decisions we made was that we wanted to develop access to the collection rather than preservation, and we had quite a number of discussions about that. One example is that one of the libraries had material that was very old; paper was very fragile. Some of them will not be used very often, but some scholars might come to look at them and was concerned that the paper was so fragile, unless we digitize them. But we do not want to digitize the material just purely for the purpose of preservation. What we want to do is to focus on materials that are used by students, faculty and researchers. We want the material to be useful for research, teaching…

> Another decision we made was that it would be free. There are some opinions in the library system we should build it and sell it as access in some way. And there were other opinions, far more opinions, thought this resource should be free, because libraries in North America began as free resources with the goal of providing materials for people so they could self-educate themselves. So that's kind of background of libraries that I think librarians intend to carry that philosophy with them, so that they see libraries have materials to freely give education and it's for the public good so we shouldn't charge for it and the digital library would be just another of the library collection format.

In addition to the primary motive of all the digital collections to preserve the physical materials and improve access to the physical objects (Machovec, 2002, 1), the *Peel* project highlights another very valuable point of digital collection scarcely addressed in the literature: to make the digital collection a free resource, to facilitate access to the information. Every collection has its unique points, beginning with the development process. Faye noted the key steps and major problems of the ongoing project. She highlighted the details of how they made decisions about the full-text searchability function and the difficulties they encountered during that process:

> we had one big issue in that we want full text searchability. Then the next big problem was how much it will cost, and do we have those kinds of resources, so having made that decision and looking for something that would give us decent full text searchability, we went to look at other digital library sites. One we looked at early on was early Canadiana online, and we decided that we can just use this as a rough model. We were really impressed that this is such a wonderful site, if that works well, we can work towards the functions that they haven't incorporated, which is full text searchability. Having decided this, we were going to look for how we were going to get the OCR and what software we want. It was quite new at that time; there were very few libraries around doing those kinds of the things. So we phoned around to different companies that would do digitization for us; also phoned around to some academic institutions asking for some advice, University of Toronto gave us recommendations for the software.

A systematic development plan can help to improve "futurity" (Drucker 1974). In a rapidly changing environment such as the digital enviroment, a formal continuous plan is even more important (Johnson 2004, 68) to help improve the quality of all the decisions (Johnson 2004, 95). The description above disclosed that the *Peel* team spent lots of moneyon the full-text searchability development, so that the usability study had to be ranked as a lower priority. Faye discussed their research and future plans and explained the reason they did not have a usability study plan:

> No, we don't [have time to do user studies]. We all have the priority list of what we are going to do, because even the stuff we have here, it's not nearly enough to develop something the way we would like, so we always have to look at the features that we would like, decide which is most important, and achieve the top items each year. But we haven't done anything about amount software: determine how many users have used site; how many hits there are… yes, we did studies on focus group…but we haven't done any work in terms of looking at the whole body of our users who are using the site.

Although the *Peel* project team has short term plans and priority task lists, a broad, long term development plan has yet to be developed. Johnson (2004, 95) stated that through planning, a library can have a better understanding of "its desired future and how to apply available resources to obtain that future." Machovec (2002, 3) also noted that "digital collections built with special funding should have a plan for their continued usability beyond the funded period". The *Peel* team lacks an indispensable usability study as a part of the formal development plan at this point in time.

Polo is the developer involved in the project. He discussed the web-based technical problems they encountered in the project and also explained some of the key design elements of the site:

> I did design the architecture, coding and implementation and presenting the website …visual design is done by an outsource company…website has been done in three parts, this front-show is done by PHP, very simple PHP content management; if I run a search, then I am going to open source package called Sitesearch, we use that to mount the bibliography data…we want the ability to highlight specific items to draw attention, these are the recent rare items libraries just purchased, and we want the opportunity to show off… [Can you tell me some difference between collection and special feature?] [The sub link of] "Collection"? These are related projects within this interface, they are part of the same digitization projects, but [for instance], I don't think this French newspaper was listed in the bibliography book... it was an opportunity we had to collaborate some heritage group of the province, put money together to do the digitalization … special features are something within the *bibliography*, within the site, but the "collections" are after the site, can not be searched from the "search box".

Faye also explained,

> we found that the features they would like to see in terms of the display of the information, the ability to download, to copy and paste, anything like that; they were more concerned about what's going into it, what kind of materials are you going to add; we got some very specific advice from them and some of them we had used, for example, why don't you digitize the missionary reports of oblates fathers, because that's very important for people who are working for history about western Canada, but there is only an index and it would be wonderful to have that full text searchable, then we did that.

According to the web usability design rules, the interface ought to speak the users' language (Nielsen 1990, 1), instead of only meeting the needs of the designers. According to the IMLS guidelines of digitalization projects (Machovec 2002, 3), *Peel* has been a very successful example, except that it did not meet the criterion that "a good collection provides some measurement of use" at this stage. According to this study, *Peel*'s current website has a variety of major web usability problems. The header title of "special features" and "collections" caused some confusion, which has been stated by several HSS scholars (e.g., Ervin, Margaret). Renaming the header "Collections" as "Sub-projects" could be one of

the solutions to clean up this confusion. Also, the "Back to Home" link should be built into each of the sub-pages.

The absence of usability studies as a part of systematic long term planing has led the development team to incorporate more material and new search functions without any formal usability studies between the development stages. This made the users confused about the new elements of search and display functions of the digital collection, based on the findings of this project. The *Peel* team members have explained that the temporary absence of usability studies is due to a lack of both financial and human resources. However, a central plan to inform and protect the collection is necessary to define the scope of existing resources and recognize current and future user needs (Johnson 2004, 96); a usability study is an indispensable mechanism to achieve this goal.

Chapter V Conclusion and Discussion

In 1991, in a study of humanities and social sciences scholars conducting their work before computers and other information technologies had a major impact, Stephen Wiberley delineated the significant origins of this area of scholarship. He claimed that the 1990s promised to be a decade during which HSS scholars would incorporate more and more new information technology. Wiberley (1991, 19-20) indicated three basic characteristics, which are reluctance to ask questions of general reference librarians (needs new study for the new role of reference librarian), respect for influential peers, and concentration on research specializations to the exclusion of other activities. In the current study probing the HSS scholars' information behaviours in the general research context, the HSS scholars, to a large extent, are still keeping these research habits, such as working solitarily and chasing footnotes for related information resources. However, senior scholars are relatively more solitary than their junior colleagues. The information resources that HSS scholars refer to are fundamentally determined by the nature of the project and limited by the available resources, an aspect which has no clear difference for digital resources or physical resources. Technology has enhanced research scholarship in a series of important ways. An acceleration of certain processes has been seen, as when scholars are given the question of "if only given one choice", scholars choose online, for a variety of reasons. Most of all, it is because of the ease of access to the material. Although not obvious, the

trend that HSS scholars tend to prefer relatively short articles available in digital formats, such as e-journals and subscription databases, has been found. However, e-books are still not preferred by HSS scholars. Technology has even made HSS scholars' research much more convenient than ever before with features like "full text search", electronic bibliography tools, and so on. Junior scholars, who need reference help, embrace the idea of the "electronic reference librarian" especially during the hours the reference desks are closed.

At the same time, the digital shift has sometimes caused confusion. Although scholars feel the research process has been facilitated through easier ways to access information, they have not shown enough confidence in the control of their searching and browsing practices. It is rarely clear to them what protocols exist or what a particular digital collection contains. They are not confident in their ability to entirely control the digital resources available to them (Brockman et al. 2001). It has been concluded that there is a strong relationship between HSS scholars' information literacy skills and their confidence in controlling digital resources, which has little to do with their age.

In the particular context of digital collections, HSS scholars were concerned with the specific content of the collections and indicated that the clarified scope of the collection is extremely helpful in assisting them in locating information. It has been projected that the usability of the digital collection website will be a key issue in delivering information efficiently. Furthermore, since the digital collection site is virtually representing historical archive resources, HSS scholars want to be able to search by historical period. Compared to other digital resources,

such as e-journals and e-books, because every digital collection has its specific scope and content, scholars expect the creator of the collection database to have comprehensive knowledge of the terminology of the collection, which could fundamentally facilitate the precision of the search function of the particular collection.

Jerome McGann (1998) described the HSS scholars' research work: "Textual studies are ground zero of everything we do. As humane scholars we should not leave the development of the tools, which includes their introduction to our institutions, to administrators and engineers" (610) . To make academic research libraries more efficient, empirical studies to investigate the contextual information behaviour of specific scholarship are not only important but also urgent.

Future Research

The different activities and preferences that emerged from the interviews with both the scholars and librarians suggest that we have not yet built a perfect bridge for the digital collections to their audience. There are some very typical divergences:

- Librarian: "we put 'Special Features' on the top because we feel proud about it, it is a new technology."
- Users: "I am very confused about why the 'Special Features' occupy such an important position, which means little to me."

In exploring the HSS scholars' research information behaviours in the context of digital environments, the research at the same time has fully opened the

door for future research. First, the research subjects group could be systematically expanded. Demographically, the current sampling is predominately humanities scholars. More sampling within social sciences disciplines should be explored, for instance with scholars from disciplines like political science, sociology, and psychology. Also, future research could expand to other digital collections as the information context. Based on this, it can ultimately lead to further studies (e.g., quantitative research methods) to build models of information behavior for digital collections.

Second, scholars like Ervin, who enjoyed the "physical library" because they really like the place, prompt a new theme for potential research. As Gloria Leckie (2004, 234) indicated in her project, besides reading, the relationship that patrons develop to the library as physical space has been overlooked. However, her research only focused on public libraries. In the new digital library environment, how academic libraries will define their roles suggests new potential studies.

Initially, Bercher (1989) illustrated that the contribution of the humanities research to widen society is less than directly utilitarian. With the belief that "the humanities, in its study of unique views and visions of human experience, is essential to the world" (Reynolds 1995, 79), this researcher argues we should articulate the need to continuously support the work of HSS scholars at any level, from the most senior scholarly to the very junior ones.

Reference List:

Allen, Bryce, and Kyung-Sun Kim. 2001. Person and context in information seeking: Interactions between cognitive and task variable. *The New Review of Information Behaviour Research* 2, no. 2:1-16.

Amateur Athletic Foundation of Los Angeles Sports Library. 2005. *Amateur Athletic Foundation of Los Angeles Sports Library*. http://www.aafla.org/ (accessed Dec 24, 2005)

American Library Association. 2005. *What is information literacy*. American Library Association. http://www.ala.org/ala/acrl/acrlissues/acrlinfolit/infolitoverview/infolitforfac/infolitfaculty.htm#background (accessed Dec 24, 2005)

British Broadcasting Corperation. 2005. British Broadcasting Corperation. http://www.bbc.co.uk/ (accessed Dec 24, 2005)

Bates, Marcia J. 1996. Learning about the information seeking of interdisciplinary scholars and students. *Library Trends* 45, no. 2:155-164.

Bercher, Tony. 1989. *Academic Tribes and Territories: Intellectual Enquiry and the Cultures of Disciplines*. Stony Stratford: The Society for Research into Higher Education & Open University Press.

Bouazza, A. 1989. Information user studies. In *Encyclopedia of Library and Information Science*, ed. Allen Kent, 144-164. New York: M. Dekker.

Branin, Joseph J. 1982. Cooperative collection development. In *Collection Management: A New Treatise*, ed., C.B. Osburn and R. Atkinson. Greenwich, CT: JAI Press.

Broadbent, Elaine. 1986. A study of humanities faculty library information seeking behaviour. *Cataloging and Classification Quarterly* 6, no. 3:23-37.

Brockman, William S., Laura Neumann, Carole L. Palmer, and Tonyia J. Tidline. 2001. *Scholarly Work in the Humanities and the Evolving Information Environment*. Washington: Digital Library Federation, Council on Library and Information Resources.

Canada's Digital Collections. 2005. *Welcome to Canada's Digital Collections*. Canada's Digital Collection. http://collections.ic.gc.ca/E/view.html (accessed December 18, 2005)

Case, Donald O. 2002. *Looking For Information: A Survey of Research on Information Seeking, Needs, and Behaviour.* Amsterdam, New York: Academic Press.

Case, Donald. O. 1986. Collection and organization of written information by social scientists and humanists: A review and exploratory study. *Journal of Information Science* 11, no. 3:97-104.

Choo, ChunWei, Brian Detlor and Don Turnbull. 2000. *Web Work: Information Seeking and Knowledge Work on the World Wide Web.* Boston: Kluwer Academic Publishers.

Chu, Clara. 1999. Literary critics at work and their information needs: A research phases model. *Library and Information Science Research* 21, no. 2:247-73.

Cole, Charles.1998. Information acquisition in history Ph.D. students: Inferencing and the formation of knowledge structure. *The Library Quarterly* 68 no. 1:33-54.

Covey, Denise T. 2002. *Usage and Usability Assessment: Library Practices and Concerns.* Washington: Digital Library Federation, Council on Library and Information Resources.

Creswell, John W. 1998. *Qualitative Inquiry and Research Design: Choosing Among Five Traditions.* Thousand Oaks, CA: Sage Publications.

Davidsen, Susanna and Yankee Everyl. 2004. *Website Design with the Patron in Mind: A Step-by-step Guide for Libraries.* Chicago: American Library Association.

Delgadillo, Roberto, and Beverly P. Lynch. 1999. Future historians: Their quest for information. *College & Research Libraries* 60:253.

Denzin, Norman K. and Yvonna S. Lincoln, 1994. *Handbook of Qualitative Research.* Thousand Oaks: Sage Publications.

Dervin, Brenda. 1997. Given a context by any other name: Methodological tools for taming the untruly beast. In *Information seeking in context: Proceeding of a meeting in Finland 14-16* August 1996, ed. P. Vakkari, R. Savolainen, and B. Dervin, 13-38. London: Taylor Graham.

Dervin, Brenda. 1983. *An Overview of Sense-making Research: Concepts, Methods, and Results to Date.* International Communications Association Annual Meeting. http://communication.sbs.ohio-state.edu/sense-making/art/artabsdervin83smoverview.html (accessed Dec 24, 2005)

Duff, Wendy M., and Catherine A. Johnson. 2002. Accidentally found on purpose: Information-Seeking behaviour of historians in archives. *The Library Quarterly* 72 no.4:472-96.

Drucker, Peter. 1974. *Management: Tasks, Responsibilities, Practices*. New York: Harper & Row.

Ellis, David. 1989. A behavioral approach to information retrieval design. *Journal of Documentation* 45:171-212.

Evans, Edward G. 2000. *Developing Library and Information Center Collections*. Englewood, CO: Libraries Unlimited.

Florida Heritage Collection. 2005. *Florida Heritage Collection*. http://palmm.fcla.edu/fh/ (accessed Dec 24, 2005)

Friedlander, Amy. 2002. Dimensions and use of the scholarly information environment: Introduction to a data set. Washington, DC: Council on library and information resource. Http://www.clir.org/pubs/reports/pub110/contents.html (access July 25th, 2005)

Genuis, Shelagh K. 2004 Website usability testing: A critical tool for libraries. *Feliciter* 50, no. 4:161-4.

Given, Lisa M. 2002. The academic and the everyday: Investigating the overlap in mature undergraduates' information-seeking behaviours. *Library & Information Science Research* 24, no.1:17-29.

Gould, Constance C. and K. Pearce. 1991. *Information Needs in the Sciences: An Assessment*. Mountain View, CA: Research Libraries Group.

Graham, John Bauer, Jodi Poe and Kimberly Weatherford. 2003. Functional by design: A comparative study to determine the usability and functionality of one library's website. *Technical Services Quarterly* 21, no. 2:33-49.

Green, Rebecca. 2000. Locating sources in humanities scholarship: The efficacy of following bibliographic references. *Library Quarterly* 70: 201-29.

Greenstein, Daniel and Suzanne E. Thorin. 2002. *The Digital Library: A Biography*. Washington: Digital Library Federation, Council on Library and Information Resources.

Henjum, Elaine. 2000. Introducing the Florida Heritage Collection: A cooperative digital library initiative. *Florida Libraries* 43, no. 2:8-9.

Hogeweg de Harrt, H. P. 1981. *Characteristics of social science information.* Budapest, Hungary: Hungarian Academy of Sciences/International Federation for Documentation.

Hoglund, Lars and Wilson, T. D. 2000. *The New Review of Information Behaviour Research: Studies of Information Seeking in Context.* Cambridge, England: Taylor Graham Publishing.

Ingles, Ernest. 2003. *Peel's Bibliography of the Canadian Prairie to 1953 (3rd).* Toronto: University of Toronto Press.

International Standards Organization. 1999. *Human-Centered Design Processes for Interactive Systems, Report ISO 13407: 1999.* Geneva, Switzerland: International Standards Organization.

Jarkko, Kari and Reijo Savolainen. 2003. Towards a contextual model of information seeking on the Web. *New Review of Information Behaviour Research* 4 no. 1:155-75.

Johnson, David J. 1997. *Cancer-related Information Seeking.* Cresskill, NJ: Hampton Press.

Johnson, Peggy. 2004. *Fundamentals of Collection Development and Management.* Chicago: American Library Association.

Kilker, Julian and Geri Gay. 1998. The social construction of a digital library: A case study examining implications for evaluation. *Information Technology and Libraries* 17, no. 2:60-70.

Kvale, Steinar. 1996. *Interviews: An Introduction to Qualitative Research Interviewing.* Thousand Oaks, CA: Sage.

Krikelas, James. 1983. Information-seeking behaviour: Patterns and concepts. *Drexel Library Quarterly* 19:5-20.

Leckie, G. J., K.E. Pettigrew, and C. Sylvain. 1996. Modeling the information seeking of professionals: A general model derived from research on engineers, health care professionals and lawyers. *Library Quarterly* 66: 161-93.

Leckie, Gloria. 2004. Three perspectives on libraries as public space. *Feliciter* 50 no.6: 233-236.

Light, Ann. 2001. The influence of context on users' responses to websites: Sociological aspects of information science. *New Review of Information Behaviour Research* 1 no. 1:1-25.

Line, Maurice B. 2001. The new review of information behaviour research: Studies of information seeking in context, volume 1, 2000. *Library Management* 22, no. 8/9:425-26.

Lougee, Wendy, Mark Sandler, and Linda L. Parker. 1990. The Humanities Scholars Project: A study of attitudes and behaviour concerning collection storage and technology. *College and Research Libraries* 51:231-40.

Machovec, G. S. 2002. Guidelines for developing good digital collection projects. *Online Libraries and Microcomputers* 20 no. 3:1-6.

Malone, Debbie and Carol Videon. 1997. Assessing undergraduate use of electronic resources: A quantitative analysis of works cited. *Research Strategies* 15, no. 3:151- 158.

Marchionini, Gary. 1995. *Information Seeking in Electronic Environments, Cambridge Series on Human Computer Interface, Vol. 9.* Cambridge: Cambridge University Press.

McGann, Jerome. 1998. Textual scholarship, textual theory, and the uses of electronic tools: A brief report on current undertakings. *Victorian Studies* 41:609-619.

National Science Foundation. 1998. *Digital libraries initiative - phase 2.* http://www.nsf.gov/pubs/1998/nsf9863/nsf9863.htm (accessed July 18, 2004)

Nielsen, Jakob. 2003. *Misconceptions about Usability.* http://www.useit.com/alertbox/20030908.html (accessed July 25th, 2005)

Nielsen, Jakob. 2002. *Why you only need to test with 5 users.* http://www.useit.com/alertbox/20000319.html (accessed July 18, 2005)

Nielsen, Jakob. 2000. *Designing Web Usability.* Indianapolis, Indianna: New Riders Publishing.

Nielsen, Jakob. 1994. *Report from a 1994 web usability study.* http://www.useit.com/ papers/1994_web_usability_report.html (accessed Jan 5, 2005)

Nielsen, Jakob. 1990. *Ten Usability Heuristics.* http://www.useit.com/papers/heuristic/heuristic_list.html (accessed July 25th, 2005)

Nielsen, Jakob and Donald A. Norman. 2000. *Usability on the web isn't luxury. Information Week.* http://www.informationweek.com/773/web.htm(accessed July, 2005)

Okerson, Ann. 2000. Are we there yet? Online e-resources ten years after. *Library Trends* 48, no. 4:671-93.

Palmer, Judith. 1991. Scientist and information: Using cluster analysis to identify information style. *Journal of Documentation* 47:105-29.

Payette, Sandra D. and Oya Y. Rieger. 1998. Supporting scholarly inquiry: Incorporating users in the design of the digital library. *The Journal of Academic Librarianship* 24, no. 2:121-9.

Peel, Bruce Braden. 1976. *Peel Bibliography on Microfiche [Microform] Bibliographie Peel Sur Microfiche.* Ottawa: National Library of Canada.

Prown, Sarah. 1999. *Detecting 'broke': Usability testing of library websites. Yale University Library.* http://www.library.yale.edu/~prowns/nebic/nebictalk.html (accessed December 18, 2005)

Reference and User Services Association. 2005. American Library Association. http://www.ala.org/RUSAMAINTemplate.cfm?Section=rusa (accessed Dec 24, 2005)

Research Support Libraries Group Final Report. 2002. Researcher's Use of Libraries: Education for Change Ltd., SIRU (University of Brighton), and the Research Partnership.

Reynolds, Judy. 1995. A brave new world: User studies in the Humanities enter the electronic age. *Reference Librarian* 49/50:61- 81.

Romanos-de-Tiratel, Susana. 2000. Accessing information use by humanists and social scientists: A study at the Universidad de Buenos Aires, Argentina. *The Journal of Academic Librarianship* 26, no. 5:346-54.

Seidman, I. E. 1998. *Interviewing as Qualitative Research: A Guide for Research in Education and Social Sciences.* New York: Teachers College Press.

Sievert, Donald and MaryEllen Sievert. 1988. Humanists and technologists: the case of philosophers. In *Information Technology: planning for the next fifty years. Proceedings of the 5First Annual Meeting of the American Society for Information Science, Volume 25*, eds Christine L. Borgman and Edward Y. H. Pai, 94-99. Medford, New Jersey

Silverman, David. 2000. *Qualitative Research: A Practical Handbook.* Thousand Oaks: Sage.

Soper, M. E. 1976. Characteristics and use of personal collections. *Library Quarterly* 46, no. 4:397-415.

Stone, Sue. 1982. Humanities scholars: Information needs and uses. *Journal of Documentation* 38, no. 4:292-313.

Tagg, S. K. 1985. Life story interviews and their interpretations. In *The Research Interview: Uses and Approaches,* eds. M. Brener, J. Brown, and D. Canter, 163-199. London: Academic Press.

Talja, S., H.Keso, and T. Pietilainen. 1999. The production of "context" in information seeking research: A metatheoretical view. *Information Processing & Management*, 35:751-763.

Tibbo, Helen R. 1991. Information systems, services, and technology for the Humanities. *Annual Review of Information Science and Technology* 26:287-346.

Tubre, Travis. 2001. *Building a Better Literature Review: Reference and Information Sources for I-O Psychology.* Society for Industrial and Organizational Psychology Inc. http://siop.org/tip/backissues/TipApr01/07Tubre.htm (accessed Dec 24, 2005)

University of Alberta Libraries. 2005. *Peel's Prairie Provinces*. University of Alberta. http://peel.library.ualberta.ca/brucepeel.php (accessed December 18, 2005)

Watson-Boone, Rebecca. 1994. The information needs and habits of Humanities scholars. *RQ* 34, no. 2:203- 216.

Westbrook, Lynn. 2003. Information needs and experiences of scholars in Women's Studies: problems and solutions. *College and Research Libraries* 64, no. 3:192-209.

Wiberley, S. and W. Jones. 1989. Patterns of information seeking in the Humanities. *College & Research Libraries* 50:638-645.

Wiberley, Stephen and Jones, William-Goodrich. 2000. Time and technology: A decade-long look at humanists' use of electronic information technology. *College and Research Libraries* 61, no. 5:421-31.

Wiberley, Stephen E. 1991. Habits of humanists: Scholarly behaviour and new information technology. *Library Hi Tech* 9, no. 1:17- 21.

Wikipedia. 2005a. *Definition of Humanities*. In the Free Encyclopedia Wikipedia. http://en.wikipedia.org/wiki/Humanities (accessed July 18, 2005)

Wikipedia. 2005b. *Definition of Social Sciences*. In the Free Encyclopedia Wikipedia. http://en.wikipedia.org/wiki/Humanities (accessed July 18, 2005)

Wikipedia. 2005c. *Definition of Information*. In the Free Encyclopedia Wikipedia. http://en.wikipedia.org/wiki/Information (accessed July 18, 2005)

Wilson, T. D. 2000. Human information behaviour. *Information Science* 3, no. 2:49-55.

Wilson, T. D. 1999. Models in information behaviour research. *Journal of Documentation* 55, no. 3:240-70.

Wilson, T. D. 1997. Information behaviour: An interdisciplinary perspective. *Information Processing & Management* 33, no. 4:551-72.

Wilson, T. D. 1994. Information needs and uses: Fifty years of progress? In *Fifty years of information progress: A Journal of Documentation review,* ed. B.C. Vickery, 15- 52. London: Aslib.

Wilson, T. D. 1981. On user studies and information needs. *Journal of Documentation* 37, no. 1: 3-15.

Wilson, T. D., David Ellis, Nigel Ford, and Allen Foster. 1999. *Uncertainty in information seeking*. Loughborough: Library and Information Commission Research Report 59. http://informationr.net/tdw/publ/unis/report.html (accessed Dec 24, 2005)

Wilson, Wayne. 2003. Building and managing a digital collection in a small library. *North Carolina Libraries* 61, no. 3: 88-97.

Yale University Library. 2005. Yale University. http://www.library.yale.edu/ (accessed Dec 24, 2005)

Appendix I

Peel's Site Usage Permission Statement

UNIVERSITY OF ALBERTA

January 3, 2006

Kathy Wang
Humanities Computing Program
6-30 Humanities Centre
University of Alberta
Edmonton, Alberta
T6G 2E6

Dear Ms. Wang,

The Library is pleased to provide you with permission to capture and copy selected portions of the Peel site for inclusion in your thesis.

Your thesis, titled *Social Sciences and Humanities Scholar's information behaviour: Peel's Prairie Provinces digital library* is of great interest as the Library will soon be reviewing and revising the search and display functions of the Peel site.

Yours truly,

Fern Russell

Fern Russell
Digital Initiatives Coordinator
University of Alberta Libraries
Edmonton, Alberta
T6G 2J8

Information Technology Services
4-30 Cameron Library · University of Alberta · Edmonton · Canada · T6G 2J8
Telephone (780) 492-5282 · Fax (780) 492 9243

Appendix II Call for Participants

Attention all Faculty & Graduate Students in the Faculty of Arts
Research Participants Needed!

A research project is underway to investigate how social science and Humanities scholars use online collections in their academic work. These collections are specialized digital libraries that typically house a range of scholarly resources accessed through the Internet – including images, articles, and other materials. If you use these types of collections (e.g., UofA Libraries' "Peel Prairie Provinces" digital library) and would be willing to participate in this study, please contact:

YiQian (Kathy) Wang – MA thesis student, Humanities Computing
Email: yqw@ualberta.ca
Phone: 780-953-0866 (private voicemail)

This study will improve our understanding of how such resources serve the scholarly community. Your participation is appreciated.

If you have any questions about this research, you may contact the project supervisor:

Dr. Lisa Given
Associate Professor, School of Library and Information Studies
lisa.given@ualberta.ca
780-492-2033

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Faculties of Education and Extension Research Ethics Board (EE REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EE REB at (780) 492-3751.

Appendix III Information/Consent Letter

I. Information letter for potential participants

Information Letter (Social Sciences and Humanities scholars' information behaviour – the *Peel's Prairie Provinces* digital library)

September 2004

I am very glad to invite you to participate in this research project. This study is going to investigate social science and Humanities (SSH) scholars' information seeking behaviours in the context of the web by examining Arts faculty and graduate students' use of online collections such as the University of Alberta – *Peel's Prairie Provinces*. Based on interview results and the application of web usability theory, the study will outline desired features that might be incorporated into these websites to make digital collections more useful to SSH scholars' research.

I will be asking you about your information seeking behaviours in the web context and obtaining your opinions and preferences for accessing information via the University of Alberta Peel's website <peel.library.ualberta.ca>, as one example of an online collection. The study will be conducted as a one-on-one, face-to-face interview, and is expected to last an hour and a half. Time and location will be arranged for your convenience and whole interview process will be audio-recorded.

I am an MA student in Humanities Computing and the findings of this study will form part of my thesis work. My thesis supervisor is Dr. Lisa Given, Associate Professor in the School of Library and Information Studies.

Please understand that your participation in this study is entirely voluntary. All information will be held confidential and you will be assigned a pseudonym to be used in publications so that you will not be identified. If there are any questions that you do not wish to answer, you don't have to answer them. You may also withdraw from the study at any time. The findings of this study may be published in scientific journals and/or reported at professional conferences.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Faculties of Education and Extension Research Ethics Board (EE REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EE REB at (780) 492-3751.

If you have any questions about this interview, please feel free to contact me:
YiQian (Kathy) Wang
Email: yqw@ualberta.ca
Phone: 780-953-0866

Or, my supervisor:
Dr. Lisa Given
Associate Professor
School of Library and Information Studies
lisa.given@ualberta.ca
780-492-2033

Appendix IV
Information letter for librarians

Information Letter (Social Sciences and Humanities scholars' information behaviour – the *Peel's Prairie Provinces* digital library)

September 2004

I am very glad to invite you to participate in this research project. This study investigates the ways that social science and Humanities (SSH) scholars use digital collections such as the University of Alberta's digital library – *Peel's Prairie Province*- in completing their academic work. As a part of this project, I would like to learn more about the development about the Peel's digital library, especially related to web design and use. The study will be conducted as a one-on-one, face-to-face interview, and is expected to last an hour and a half. Time and location will be arranged for your convenience and whole interview process will be audio-recorded.

I am an MA student in Humanities Computing and the findings of this study will form part of my thesis work. My thesis supervisor is Dr. Lisa Given, Associate Professor in the School of Library and Information Studies.

Please understand that your participation in this study is entirely voluntary. All information will be held confidential and you will be assigned a pseudonym to be used in publications so that you will not be identified. If there are any questions that you do not wish to answer, you don't have to answer them. You may also withdraw from the study at any time. The findings of this study may be published in scientific journals and/or reported at professional conferences.

The plan for this study has been reviewed for its adherence to ethical guidelines and approved by the Faculties of Education and Extension Research Ethics Board (EE REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EE REB at (780) 492-3751.

If you have any questions about this interview, please feel free to contact me:
YiQian (Kathy) Wang
Email: yqw@ualberta.ca
Phone: 780-953-0866

Or, my supervisor:
Dr. Lisa Given
Associate Professor
School of Library and Information Studies
lisa.given@ualberta.ca
780-492-2033

Appendix V Consent form

Interview Consent Form (Social Sciences and Humanities scholars' information behaviour – the *Peel's Prairie Provinces* digital library)

This consent form outlines my rights as a participant in the study "SSH scholars information behaviours and web usability needs in the context of one digital library—*Peel's Prairie Province*" conducted by YiQian Wang, Humanities Computing, University of Alberta.

The description of purposes and explanation of procedures is provided here, I understand that:

- My participation in this study is entirely voluntary.
- It is my right to decline to answer any question that I am asked.
- I may withdraw at any time without prejudice to pre-existing entitlement, and to continuing and meaningful opportunities for deciding whether or not to continue to participate.
- I have the right to opt out.
- All information I provide is completely confidential
- My name and identity will remain anonymous in any publications or discussions.
- All the data are to be kept securely for at least 5 years following completion of research and then will be destroyed
- I may disclose the presence of any apparent or actual conflict of interest on the part of the researcher.

I acknowledge that YiQian (Kathy) Wang has fully explained to me the purposes and procedures. She has informed me that I will be given a copy of this consent form.

I am over 18 years of age, and I freely and voluntarily consent to my participation in the above mentioned research project. I have had a chance to ask questions concerning any areas that I did not understand. I hereby indicate my consent to be interviewed with audio recorded.

This study has been reviewed for its adherence to ethical guidelines and approved by the Faculties of Education and Extension Research Ethics Board (EE REB) at the University of Alberta. For questions regarding participant rights and ethical conduct of research, contact the Chair of the EE REB at (780) 492-3751.

Signature _____

Date _____

Appendix VI

Sample interview questions:

<u>Questions aimed at SSH scholars' information seeking behaviours</u>

- What is your research about? Tell me more about your work…
- What types of information resources do you use in your work? (example – primarily new books? old books? Periodicals – journal articles? newspapers? Images?) What kind of resources do you usually use throughout the research process? How do you typically use these – online? Physical texts? Why?
- How do you locate this type of information for your research? (example – do you go to the library – physical or website? Talk to colleagues?) How do you evaluate that material – how do you select which resources are the best ones for your work?
- Do you feel your research approach has changed with the development of technology? How do electronic information sources affect work practices?
    - What do you think causes that trend?
    - How, on what level, do you think, this trend affects your research? What do you think about the future of technology in this area?
- Would you be kind to describe your feelings about the difference between web resources and physical resources from an academic perspective?
- If you could only use physical resources or online resources – which would you choose and why?

- Thinking about online resources only....from your own point of view, what functions and characteristics make one electronic resource better than another?
- Do you use any online collections in your work? If so, what ones do you use? Let's take a look at one of these... (do you have URLs for these).
- Have you ever used the UofA Libraries' "Peel's Prairie Provinces" website? Let's take a look at it now...

Appendix VII

Questions aimed at Peel's web usability

USERS

- How long have you been using this digital collection? How is this site relevant to your research? Can you find the information you need on this site?
- How often do you go to this site for information?
- Have there been times you couldn't find what you needed? If so, where did you go then – to another site? Why and why not?
- What format of information do you expect to find according the Peel's content (e.g. images, sounds)?
- Does the navigation work well? Tell me what you like and dislike about how you move through the site.
- What do you think of the labels on the site?
- What layout design features do you like or dislike from an aesthetic perspective?
- What layout design features do you think help you (or don't help you) to find information?
- What other features do you think could be practically incorporated to help you better to locate the type of information you typically seek?
- Could you describe in general your feeling about the design of this website? Do you feel that the site is easy to use? What might you change about it?

- Are there any other websites you think are better than *Peel's* which are in the same general research area?

Appendix VIII

Questions aimed at Peel's web usability

NON-USERS

- Let's take 5 minutes to dig around on the website – just play with different links and familiarize yourself with the site. In general, what do you think this site is intended to do – who is it meant to serve? What format of information do you expect to find on this site (e.g., images, sounds)?
- Does the navigation work well? Tell me what you like and dislike about how you move through the site.
- What do you think of the labels on the site?
- What layout design features do you like or dislike from an aesthetic perspective?
- What layout design features do you think help you (or don't help you) to find information?
- What other features do you think could be practically incorporated to help you better to locate the type of information you typically seek?
- Could you describe in general your feeling about the design of this website? Do you feel that the site is easy to use? What might you change about it?
- Are there any other websites you think are better than *Peel's* which are in the same general research area?

Appendix IX

Questions about the development of the Peel's project (for librarians)

- What is the goal of this project – who is the site intended to serve? What is it intended to cover? Why did your team decide to build this as a free resource on the internet?
- Who was involved in the development of the site? What were the team members' roles? How did you carry out your work with the team? Is the team still working on this project (i.e., is development still going on)?
- Please describe several key steps during the initial development stage of the peel's project. Have you encountered any problems with the site? What works well?
- Do you track information about your current users? What do you know about your users – who are they? From what disciplines? How do they use the site?
- Have you done any research about the usage of *Peel's* project? And do you have future plans to do so?
- What are the things you might like to know from users of this site?
- I would like to ask that you walk me through the site… and tell me your thoughts about each section – what it's intended to do, why it was developed, etc.
- Would you be interested in seeing the results of my research?